# LAST MINUTE REVIEW NOTES

## MRCEM OSCE

*By*

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## *IN THE NAME OF ALLAH*

***DEAR COLLEUGUES ALL OVER THE WORLD,***

IT IS MY PLEASURES TO INTRODUCE TO YOU THIS VERY SIMPLIFIED NOTES FOR THE PURPOSE OF PREPARATION AND REVIEW OF OSCE EXAM

MY ADVICE TO READ THIS NOTES FREQUENTLY AFTER HARD STUDING THE CURRICULM OF PART C EXAM AND WATCHING VIDEOS OF GEEKY MEDICS FOR AT LEAST 2 MONTHS

ALSO I ADVISE TAKING PRACTISE COURSE IN OSCE EXAM IF AVAILABLE THAT WILL HELP YOU MORE IN ADJUSTING YOUR THOUGHTS AND APPROCHES

I HOPE IT WILL BE USEFUL AND ALL DOCTORS PASS OSCE EXAM WITH HIGH SCORE

**I HOPE ALSO ENJOYING THE PHOTOS OF EGYPTIAN ANTIQUITIES AND HISTORY**

WITH MY BEST WISHES,

**ABD ELAAL MOHAMED ELBAHNASY**

EMERGENCY MEDICINE PHYSCIAN

EGYPT

## AUTHORS:

1- Pass FRCEM Primary in 7 days
2- Pass FRCEM Intermediate in 7 days
3- Emergency Medicine Notes 2019
4- Last minute review MRCEM OSCE

# References

1- FRCEM ACADEMY COURSE ,BY DR MOHAMED ABDELGHANY AND DR HASSAN ABDELRAHMAN
2- FRCEM ACADEMY COURSE YOU TUBE CHANNEL
3- GEEKY MEDICS WEBSITE
4- MRCEM PART C 125 OSCE STATIONS
5- Resuscitation council UK guidelines 2021

# History stations

# General history approach

- **Introduction**
    - ✓ Wash your hands
    - ✓ Great the examiner
    - ✓ Introduce your self
    - ✓ Confirm patient identity
    - ✓ Offer chaperon
    - ✓ Offer pain killer if pain station
    - ✓ How can I help you today?
    - ✓ Check vital signs and apply cardiac monitor if unstable complaint like bleeding fall down chest pain or palpitation or fits
- **Task ( Socrates or odippara or who approach for event )**

| | pain | | Without pain |
|---|---|---|---|
| **S** | Where exactly site of the pain? | O | It start suddenly or gradually |
| **O** | It start suddenly or gradually | D | When start? |
| **C** | How you describe this pain<br>dull,aching,pressure like,thropping ? | I | Is affecting daily activities? |
| **R** | Is this pain radiate to another sit? | P | Is it worsing or improved or the same ? |
| **A** | Any associated symptoms with the pain? | P | Did you have previous episodes? |
| **T** | Is it worsing or improved or the same ? | A | What make it worse? |
| **E** | What make it better and what make it worse? | R | What make it better? |
| **S** | Severity score from 1-10 | A | Associated symptoms |

- **Past medical history** (disease/medication/allergy/surgical operation/camera scan
- **Social history**( occupation/where live/with who/smoking/alcohol/illicit drug)
- **Family history** (any running disease in your family)
- **Travel history (** when return/rural or urban/visit hospital/blood transfusion/drink contaminated water/using mosquito net/immunization before travel **)**
- **Sexual history** if needed
- **Concern &expectation**
- **Management plan**
- **Further questions**
- **Thank the patient**
- **Wash your hand**

LAST MINUTE MRCEM OSCE

# Event approach

Like seizure /syncope /fall down

- **Introduction**
  - ✓ Wash your hands
  - ✓ Great the examiner
  - ✓ Introduce your self
  - ✓ Confirm patient identity
  - ✓ Offer chaperon
  - ✓ Ask about comfortability
  - ✓ How can I help you today?
  - ✓ Check vital signs apply cardiac monitor
- **Analysis complaint:**
  - ✓ **Who** → see you
  - ✓ **When** → happened
  - ✓ **Where** → did you have this?
  - ✓ **Why** → do you think you have this?
  - ✓ **How** → many times did you have before?
  - ✓ **What**
    - **Before**
      - What were you doing before the event?
      - Ask about symptoms like headache, dizziness, blurring of vision ,eye sensitivity to light ,vision problem
      - Do you have Chest pain, heart racing, sweating
      - Does this happened after standing from sitting position
      - Does it related to cough or sneezing or micturition?
    - **During**
      - Did your witness notice secretion or foam coming from your mouth or eye rolling backward?
      - Did you lose your consciousness?
      - Did you wet yourself?
      - How long did it take to recover your consciousness?
    - **After**
      - Did you able to get yourself up off ground?
      - Did you recover fully of confused?
      - Is there any trauma or bleeding in your body?
      - Do you feel limb weakness or numbness or paralysis?
- **Past history**
- **Family history**
- **Social history**
- **Concern**
- **Management plan**
- **Do you have any further question**
- **Thank the patient /wash your hand**

# Child approach

- **Wash your hands**
- **Great the examiner**
- **Introduction**
- **Confirm name and relationship to child**
- **Offer pain killer if pain station**
- **Offer chaperon**
- **Start your task how can I help you today**?
- **Prenatal history**
    - ✓ Did you take any medications during the pregnancy?
- **Natal history**
    - ✓ Was his delivery normal
    - ✓ What was the child's gestation and birthweight?
- **Post-natal history**
    - ✓ Any problem after deliver or any hospital admission
- **Child development**
    - ✓ Is the child meeting their developmental milestones?
- **Growth history**
    - ✓ Is the child currently growing normally
- **Immunization history**
    - ✓ Is the child up to take with their immunizations? Do you have red book?
- **Past medical history**
- **Past surgical history**
- **Family history**
- **Social history**
    - ✓ Any carer for the child?
    - ✓ Where the child lives and who live with him?
    - ✓ Where is his father? Did you inform him about his condition?
    - ✓ Do you or anyone who lives with your child smoke, drink alcohol or by any chance, use any illicit drugs?
    - ✓ What do you do for living? And father? Any financial or other problem at home?
    - ✓ Any other child at home?
    - ✓ Are social services by any chance currently or previously involved with the care of your child?
- **Concern**
- **Management plan**
- **Do you have any further question?**
- **Thank the patient**
- **Wash your hands**

# Sexual history

- **Introduction**
  - ✓ Wash your hands
  - ✓ Great the examiner
  - ✓ Introduce your self
  - ✓ Confirm patient identity
  - ✓ Offer chaperon
  - ✓ Offer pain killer
  - ✓ **I will ask you some private questions and I want to assure you that all information in our discussion will be confidential and nobody can take any information without your consent is it ok for you to ask the questions?**
  - ✓ How can I help you today?
- **Patient**
  - ✓ Do you have any medical diseases?
  - ✓ Do you planning for pregnancy ?
  - ✓ What is the last menstrual period
  - ✓ What do you do for living
  - ✓ Consensual
- **Intercourse**
  - ✓ When the intercourse happened?
  - ✓ Vaginal or anal or oral?
  - ✓ Protected or not?
  - ✓ Ejaculation inside or outside?

- **Partner**
  - ✓ How old your partner?
  - ✓ Did he have any sexual transmitted disease?
  - ✓ Did he have unsafe sex before?
  - ✓ Is he local partner or from another country
- **Past medical history**
- **Past surgical history**
- **Family history**
- **Social history**
- **Concern**
- **Management plan**
- **Further question**
- **Thank the patient**
- **Wash your hand**

# History taking

# DD

# HEADACHE

- Cluster headache (unilateral Eye lid swelling, red eye, runny nose)
- Tension headache (band like headache
- Migraine (young female, unilateral with nausea)
- SAH (worst ever headache from seconds to few minutes)
- Temporal arteritis (fever, loss of weight, TMJ claudication)
- Trigeminal neuralgia (shooting sensation at face)
- Meningitis (fever, neck stiffness, disturbed conscious level )
- Glaucoma (painful eye, decrease visual acuity, halos around objects)
- Coital cephalgia (headache during sex at orgasm)
- Over dose syndrome

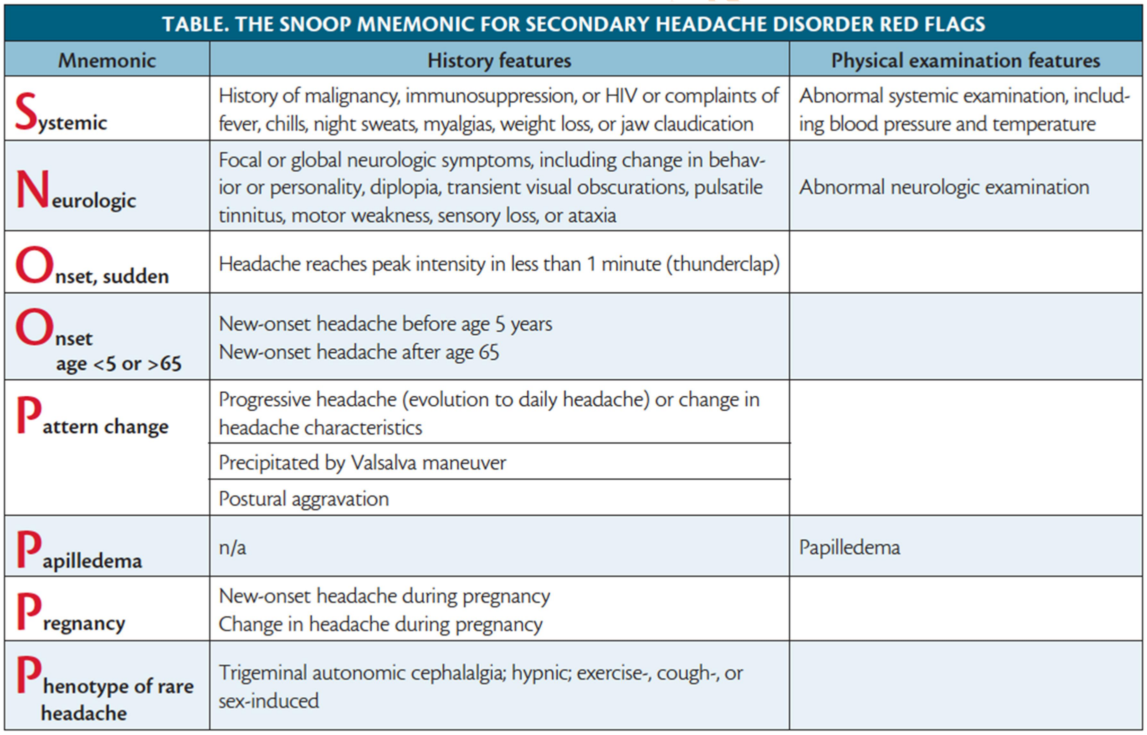


**TABLE. THE SNOOP MNEMONIC FOR SECONDARY HEADACHE DISORDER RED FLAGS**

| Mnemonic | History features | Physical examination features |
|---|---|---|
| **S**ystemic | History of malignancy, immunosuppression, or HIV or complaints of fever, chills, night sweats, myalgias, weight loss, or jaw claudication | Abnormal systemic examination, including blood pressure and temperature |
| **N**eurologic | Focal or global neurologic symptoms, including change in behavior or personality, diplopia, transient visual obscurations, pulsatile tinnitus, motor weakness, sensory loss, or ataxia | Abnormal neurologic examination |
| **O**nset, sudden | Headache reaches peak intensity in less than 1 minute (thunderclap) | |
| **O**nset age <5 or >65 | New-onset headache before age 5 years<br>New-onset headache after age 65 | |
| **P**attern change | Progressive headache (evolution to daily headache) or change in headache characteristics<br>Precipitated by Valsalva maneuver<br>Postural aggravation | |
| **P**apilledema | n/a | Papilledema |
| **P**regnancy | New-onset headache during pregnancy<br>Change in headache during pregnancy | |
| **P**henotype of rare headache | Trigeminal autonomic cephalalgia; hypnic; exercise-, cough-, or sex-induced | |

# CHEST PAIN

- MI ( lt side chest pain referred to lt arm or jaw associated with diaphoresis)
- PE (chest pain, sob, syncopal attack, lower limb swelling, ocp use in female recent surgery )
- PNEUMOTHORAX (absent air entry
- PNEUMONIA (fever, cough
- TRAUMA
- PERICARDITIS (recent infection, pain relived by leaning forward increase by lying flat

LAST MINUTE OSCE

- ANEMIA (easy fatigability ,sob, history of blood loss )
- GERD (central chest pain increase by laying down, burning in character)

## TUMMY PAIN

| Male | Female | Pediatrics |
|---|---|---|
| **AAA** | Ectopic pregnancy | intussusception |
| **Appendicitis** | Ovarian torsion | Testicular torsion |
| **Renal colic** | Endometriosis | |
| **Biliary colic** | PID | |
| **Peptic ulcer** | UTI | |
| **Lobar pneumonia** | | |

CEM OSCE

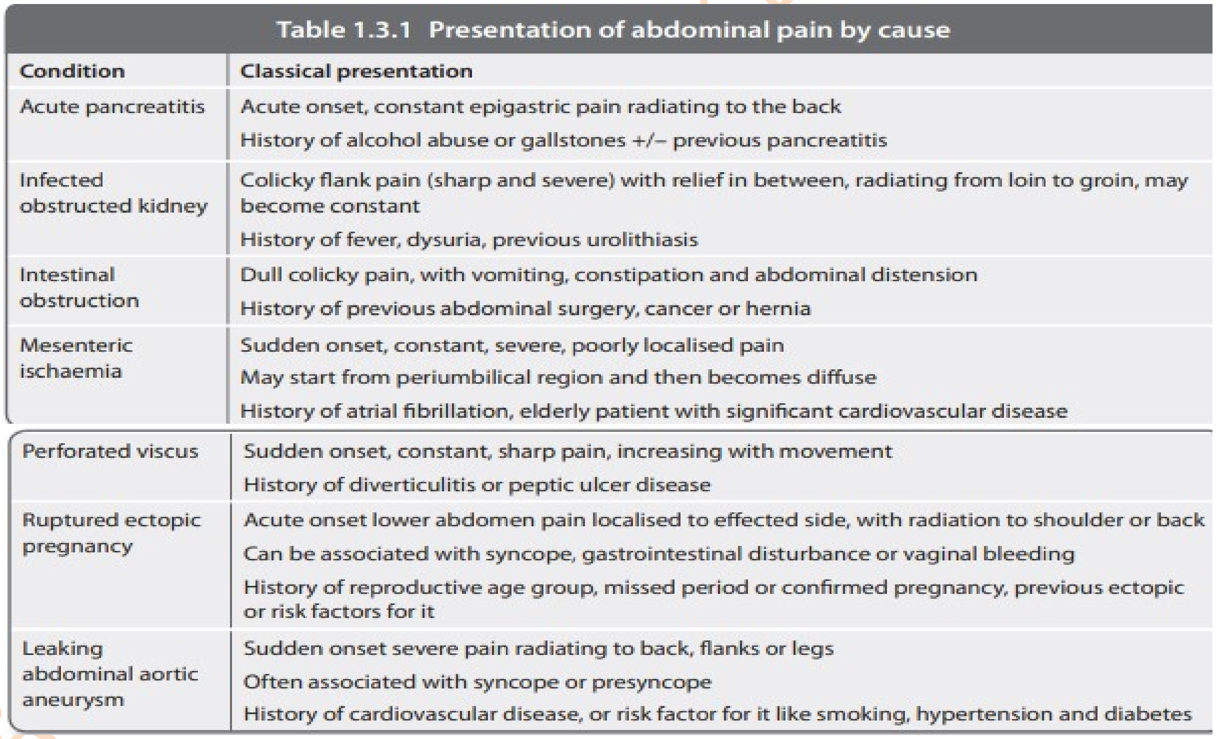


Table 1.3.1 Presentation of abdominal pain by cause

| Condition | Classical presentation |
|---|---|
| Acute pancreatitis | Acute onset, constant epigastric pain radiating to the back<br>History of alcohol abuse or gallstones +/− previous pancreatitis |
| Infected obstructed kidney | Colicky flank pain (sharp and severe) with relief in between, radiating from loin to groin, may become constant<br>History of fever, dysuria, previous urolithiasis |
| Intestinal obstruction | Dull colicky pain, with vomiting, constipation and abdominal distension<br>History of previous abdominal surgery, cancer or hernia |
| Mesenteric ischaemia | Sudden onset, constant, severe, poorly localised pain<br>May start from periumbilical region and then becomes diffuse<br>History of atrial fibrillation, elderly patient with significant cardiovascular disease |
| Perforated viscus | Sudden onset, constant, sharp pain, increasing with movement<br>History of diverticulitis or peptic ulcer disease |
| Ruptured ectopic pregnancy | Acute onset lower abdomen pain localised to effected side, with radiation to shoulder or back<br>Can be associated with syncope, gastrointestinal disturbance or vaginal bleeding<br>History of reproductive age group, missed period or confirmed pregnancy, previous ectopic or risk factors for it |
| Leaking abdominal aortic aneurysm | Sudden onset severe pain radiating to back, flanks or legs<br>Often associated with syncope or presyncope<br>History of cardiovascular disease, or risk factor for it like smoking, hypertension and diabetes |

## SOB

- PE (recent surgery/bed ridden/ll swelling/ocp use /
- MI (chest pain compressing referred to lt arm with diaphoresis )
- Pneumonia (high fever/ productive cough )
- Pneumothorax
- Asthma (past history/family history /wheezy chest /after exposure to dust or stress

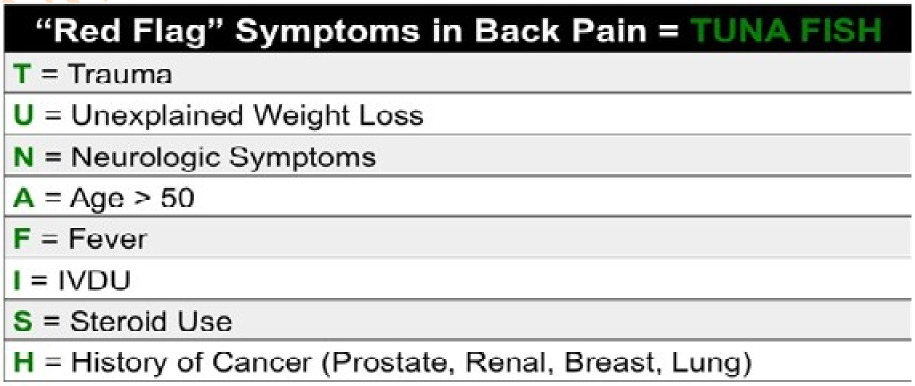
- Anemia (heavy menses/blood loss piles or fissure ,easy fatigability)
- Pregnancy (late LMP )
- Malignancy (loss of weight / loss of appetite/night sweating/lump )
- Heart failure (history/ using many pillow/use diuretics/ascites/ll edema )
- CKD with fluid overload (history/missed dialysis )

## PALPITATION

- Anemia ( blood loss/history of anemia /easy fatigability)
- MI (CHEST PAIN/REFERRED TO LT ARM/DIAPHORESIS )
- PE (leg swelling/OCT for female /recent surgery/bed ridden )
- Hyperthyroidism (neck swelling/mood change/loss of weight-sweaty hand)
- Stress
- NECK SWELLING(THYROID DISEASE)
- Caffeine (excess caffeine drinking )
- Infection (Fever/cough/sore throat )

## BACK PAIN

- AAA (old age/HTN/sever sudden pain /hematuria ,flank pain)
- Infection Discitis (fever / lumber puncture)
- Inflammatory
- Malignancy (night sweating/ loss of weight/loss of appetite/lumps)
- Quada equine syndrome (urinary incontinence or retention/constipation/weakness in lower limp/funny sensation around anus )
- Muscular (para spinal pain, lifting heavy object)
- Trauma



| "Red Flag" Symptoms in Back Pain = **TUNA FISH** |
|---|
| **T** = Trauma |
| **U** = Unexplained Weight Loss |
| **N** = Neurologic Symptoms |
| **A** = Age > 50 |
| **F** = Fever |
| **I** = IVDU |
| **S** = Steroid Use |
| **H** = History of Cancer (Prostate, Renal, Breast, Lung) |

Thoracic pain
Pain worse at night
Age less than 20 and more than 50

## Weight loss

1. Dm
2. Hypertyrodism
3. IBD
4. Connective tissue disease
5. Tumor
6. TB

## PELVIC PAIN

- ✓ DYSMENORRHEA
- ✓ PID
- ✓ ENDOMETRIOSIS
- ✓ OVARIAN TORSION
- ✓ ECTOPIC PREGNANCY

## VISUAL DISTURBANCE

- ✓ MIGRAINE
- ✓ GIANT CELL ARTERITS
- ✓ GLUCOMA
- ✓ RETINAL DETACHMENT
- ✓ OPTIC NEURITIS
- ✓ PAPILLEDEMA
- ✓ AMAUROSIS FUGAX
- ✓ CRVO/CRAO

## PAINFULL EYE

- Glaucoma (decrease visual acuity ,halos around objects)
- Optic neuritis (painful loss of vision, young female, can’t see red colour)
- Infection
- TRAUMA

## KNEE PAIN

- Septic arthritis (fever, redness, hotness)
- Osteoarthritis (old age
- Hem arthrosis (blood thinner medication, hemophilia, trauma)
- Reactive arthritis (young man sexually active )
- Osteomyelitis
- HSP (pedia +skin rash ,recent urti)

## DIFFICULT URINATION

1- Constipation related urine retention
2- UTI
3- stone
4- BPH
5- Cancer

## Leg pain

ASK ABOUT

1- Trauma
2- Swelling
3- Change in color/loss hair
4- Paresthesia
5- AF patient

## LOC/SYNCOPE

ASK ABOUT

1- HEADACHE
2- BLURRING OF VISION
3- JERKY MOVEMNT
4- WEAKNESS
5- CHRST PAIN
6- PALPAITATION

7- LATE PREGNANCY (PUREPRAL CARDIOMYOPATHY )

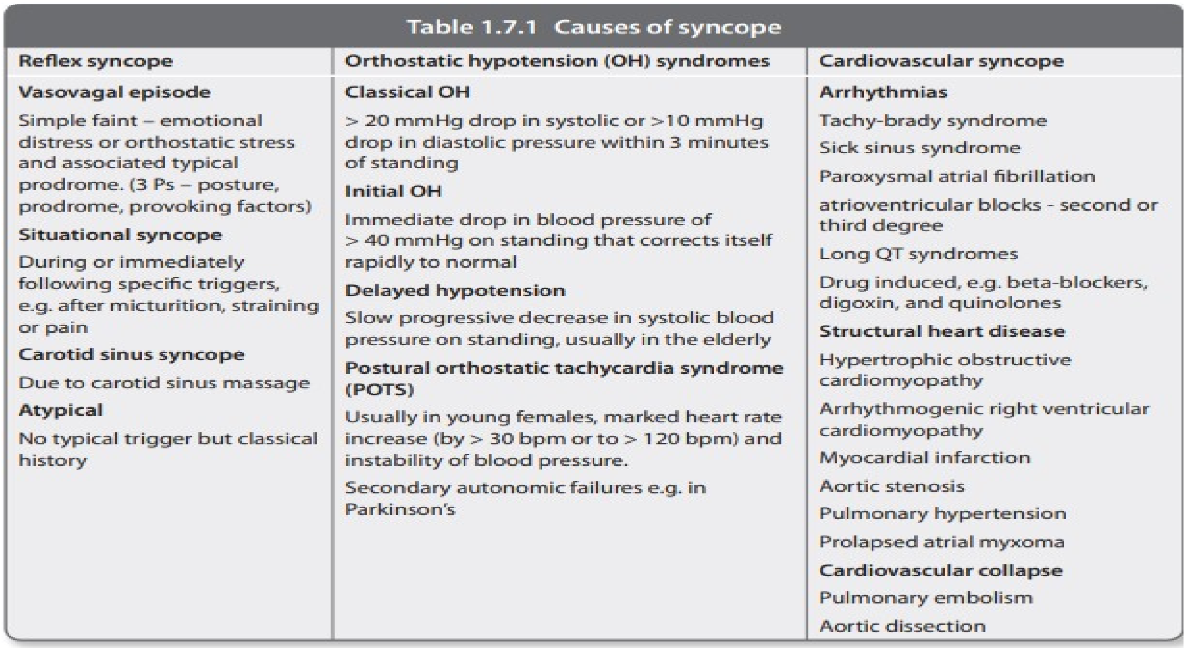


**Table 1.7.1 Causes of syncope**

**Reflex syncope**

**Vasovagal episode**

Simple faint – emotional distress or orthostatic stress and associated typical prodrome. (3 Ps – posture, prodrome, provoking factors)

**Situational syncope**

During or immediately following specific triggers, e.g. after micturition, straining or pain

**Carotid sinus syncope**

Due to carotid sinus massage

**Atypical**

No typical trigger but classical history

**Orthostatic hypotension (OH) syndromes**

**Classical OH**

> 20 mmHg drop in systolic or >10 mmHg drop in diastolic pressure within 3 minutes of standing

**Initial OH**

Immediate drop in blood pressure of > 40 mmHg on standing that corrects itself rapidly to normal

**Delayed hypotension**

Slow progressive decrease in systolic blood pressure on standing, usually in the elderly

**Postural orthostatic tachycardia syndrome (POTS)**

Usually in young females, marked heart rate increase (by > 30 bpm or to > 120 bpm) and instability of blood pressure.

Secondary autonomic failures e.g. in Parkinson's

**Cardiovascular syncope**

**Arrhythmias**

Tachy-brady syndrome

Sick sinus syndrome

Paroxysmal atrial fibrillation

atrioventricular blocks - second or third degree

Long QT syndromes

Drug induced, e.g. beta-blockers, digoxin, and quinolones

**Structural heart disease**

Hypertrophic obstructive cardiomyopathy

Arrhythmogenic right ventricular cardiomyopathy

Myocardial infarction

Aortic stenosis

Pulmonary hypertension

Prolapsed atrial myxoma

**Cardiovascular collapse**

Pulmonary embolism

Aortic dissection

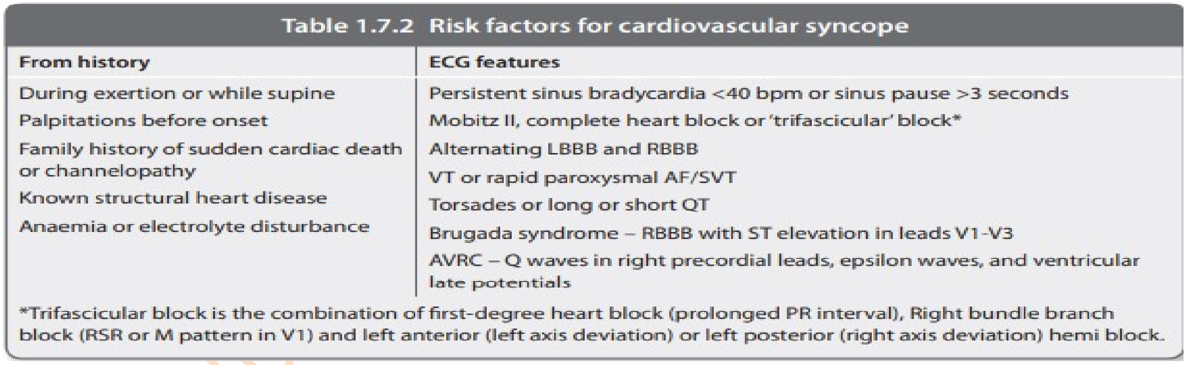


**Table 1.7.2 Risk factors for cardiovascular syncope**

**From history**

During exertion or while supine

Palpitations before onset

Family history of sudden cardiac death or channelopathy

Known structural heart disease

Anaemia or electrolyte disturbance

**ECG features**

Persistent sinus bradycardia <40 bpm or sinus pause >3 seconds

Mobitz II, complete heart block or 'trifascicular' block*

Alternating LBBB and RBBB

VT or rapid paroxysmal AF/SVT

Torsades or long or short QT

Brugada syndrome – RBBB with ST elevation in leads V1-V3

AVRC – Q waves in right precordial leads, epsilon waves, and ventricular late potentials

*Trifascicular block is the combination of first-degree heart block (prolonged PR interval), Right bundle branch block (RSR or M pattern in V1) and left anterior (left axis deviation) or left posterior (right axis deviation) hemi block.

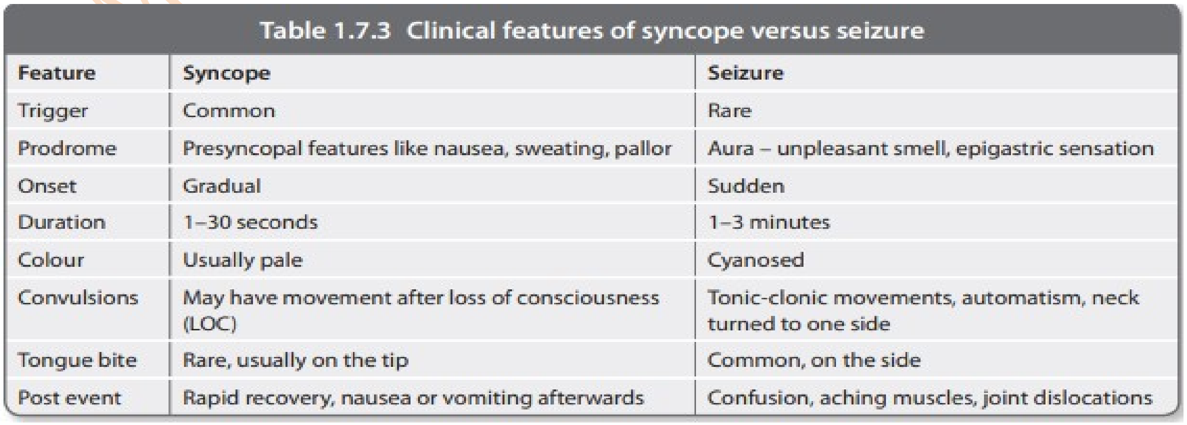


**Table 1.7.3 Clinical features of syncope versus seizure**

| Feature | Syncope | Seizure |
|---|---|---|
| Trigger | Common | Rare |
| Prodrome | Presyncopal features like nausea, sweating, pallor | Aura – unpleasant smell, epigastric sensation |
| Onset | Gradual | Sudden |
| Duration | 1–30 seconds | 1–3 minutes |
| Colour | Usually pale | Cyanosed |
| Convulsions | May have movement after loss of consciousness (LOC) | Tonic-clonic movements, automatism, neck turned to one side |
| Tongue bite | Rare, usually on the tip | Common, on the side |
| Post event | Rapid recovery, nausea or vomiting afterwards | Confusion, aching muscles, joint dislocations |

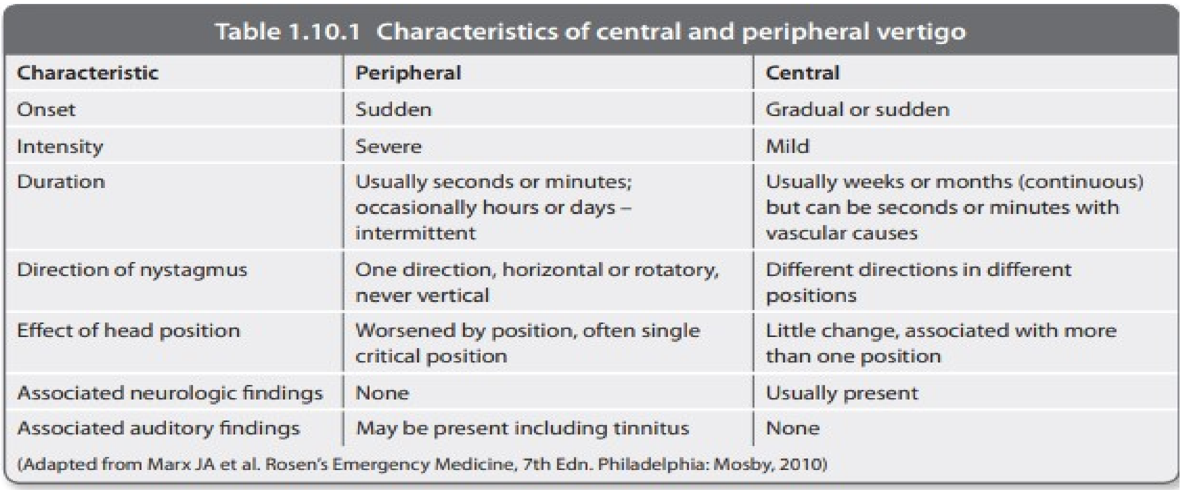


**Table 1.10.1 Characteristics of central and peripheral vertigo**

| Characteristic | Peripheral | Central |
|---|---|---|
| Onset | Sudden | Gradual or sudden |
| Intensity | Severe | Mild |
| Duration | Usually seconds or minutes; occasionally hours or days – intermittent | Usually weeks or months (continuous) but can be seconds or minutes with vascular causes |
| Direction of nystagmus | One direction, horizontal or rotatory, never vertical | Different directions in different positions |
| Effect of head position | Worsened by position, often single critical position | Little change, associated with more than one position |
| Associated neurologic findings | None | Usually present |
| Associated auditory findings | May be present including tinnitus | None |

(Adapted from Marx JA et al. Rosen's Emergency Medicine, 7th Edn. Philadelphia: Mosby, 2010)

## JAUINDICE

ASK ABOUT

1- FEVER
2- TUMMY PAIN
3- BOWEL CHANGES
4- RECENT TRAVEL
5- MEDICATION
6- ALCOHOL
7- BLOOD TRANSFUSION

## FEVER

ASK ABOUT

1- SORE THROAT
2- HEADACHE
3- COUGH
4- LOSS OF WEIGHT
5- THROUGH UP
6- LOOSE MOTION
7- URINARY SYMPTOMS
8- URETHERAL DISCHARGE
9- RECENT TRAVEL

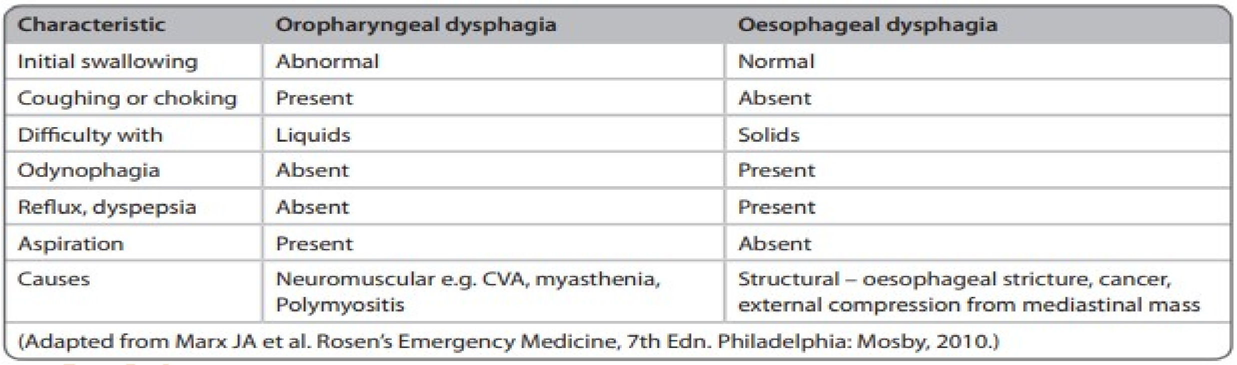
## CONSTIPATION

ASK ABOUT

1- LAST DEFECATION /PASS FLATUS
2- TUMMY PAIN,THROUGH UP,CHANGE IN BOWEL
3- YELLOW SKIN
4- BLEEDING PER RECTUM
5- LOSS OF WEIGHT/NIGHT SWEETY
6- LUMB AND HUMB
7- ABDOMINAL SURGICAL OPERATION

## Sore throat

- ✓ PHARYNGITIS
- ✓ TONSILLITIS
- ✓ CANCER
- ✓ THYROID



| Characteristic | Oropharyngeal dysphagia | Oesophageal dysphagia |
|---|---|---|
| Initial swallowing | Abnormal | Normal |
| Coughing or choking | Present | Absent |
| Difficulty with | Liquids | Solids |
| Odynophagia | Absent | Present |
| Reflux, dyspepsia | Absent | Present |
| Aspiration | Present | Absent |
| Causes | Neuromuscular e.g. CVA, myasthenia, Polymyositis | Structural – oesophageal stricture, cancer, external compression from mediastinal mass |

(Adapted from Marx JA et al. Rosen's Emergency Medicine, 7th Edn. Philadelphia: Mosby, 2010.)

# BLEEDING STATIONS

## HEMOPTYSIS

- Chest infection (fever /cough )
- PE (stapping chest pain, recent surgery/bed ridden/LL swelling/previous history)
- Malignancy ( night sweating/ loss of weight /loss of appetite/lump in body)
- TB (night sweating/loss of weight /loss of appetite )
- Bleeding disorder (blood thinner medication)

## HEMATEMSIS

- Variceal (liver disease
- Peptic disease gastric problems after eating
- Bleeding disorder (blood thinner medication)
- Malignancy (night sweating/ loss pf weight /loss of appetite/lump in body)
- Mallory Weiss syndrome

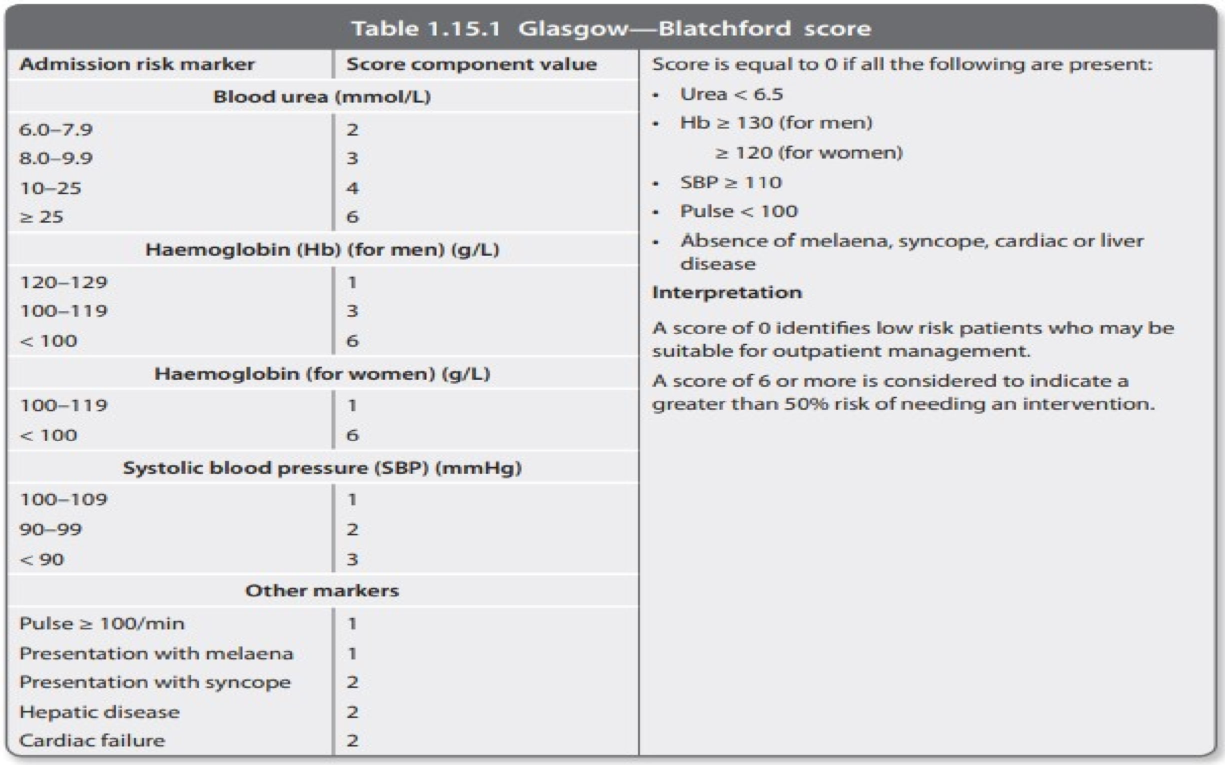


**Table 1.15.1 Glasgow—Blatchford score**

| Admission risk marker | Score component value |
|---|---|
| **Blood urea (mmol/L)** | |
| 6.0–7.9 | 2 |
| 8.0–9.9 | 3 |
| 10–25 | 4 |
| ≥ 25 | 6 |
| **Haemoglobin (Hb) (for men) (g/L)** | |
| 120–129 | 1 |
| 100–119 | 3 |
| < 100 | 6 |
| **Haemoglobin (for women) (g/L)** | |
| 100–119 | 1 |
| < 100 | 6 |
| **Systolic blood pressure (SBP) (mmHg)** | |
| 100–109 | 1 |
| 90–99 | 2 |
| < 90 | 3 |
| **Other markers** | |
| Pulse ≥ 100/min | 1 |
| Presentation with melaena | 1 |
| Presentation with syncope | 2 |
| Hepatic disease | 2 |
| Cardiac failure | 2 |

Score is equal to 0 if all the following are present:

- Urea < 6.5
- Hb ≥ 130 (for men)
  ≥ 120 (for women)
- SBP ≥ 110
- Pulse < 100
- Absence of melaena, syncope, cardiac or liver disease

**Interpretation**

A score of 0 identifies low risk patients who may be suitable for outpatient management.

A score of 6 or more is considered to indicate a greater than 50% risk of needing an intervention.

## RECTAL BLEEDING

- Malignancy (night sweating/ loss pf weight /loss of appetite/lump in body)
- Anorectal problem (anal fissure/piles)
- Diverticulitis (LT iliac fossa pain, fever)
- IBD (loss of Wight, chronic bloody diarrhea /ulcers
- Massive upper GIT bleeding
- Bleeding disorder blood thinner medication

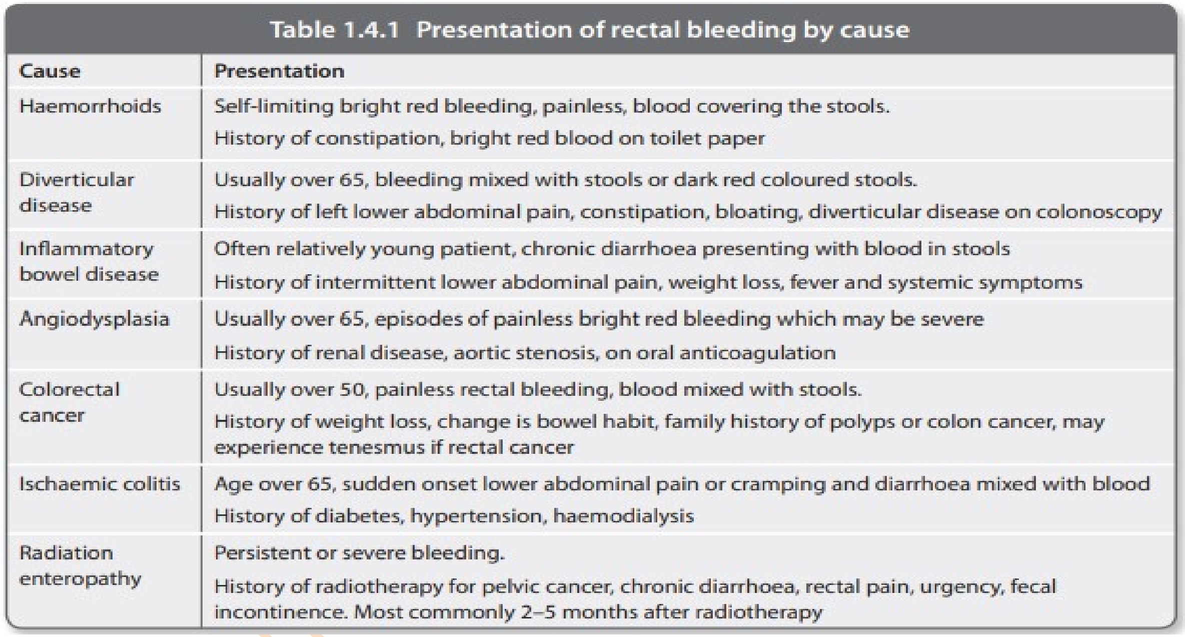


**Table 1.4.1 Presentation of rectal bleeding by cause**

| Cause | Presentation |
|---|---|
| Haemorrhoids | Self-limiting bright red bleeding, painless, blood covering the stools.<br>History of constipation, bright red blood on toilet paper |
| Diverticular disease | Usually over 65, bleeding mixed with stools or dark red coloured stools.<br>History of left lower abdominal pain, constipation, bloating, diverticular disease on colonoscopy |
| Inflammatory bowel disease | Often relatively young patient, chronic diarrhoea presenting with blood in stools<br>History of intermittent lower abdominal pain, weight loss, fever and systemic symptoms |
| Angiodysplasia | Usually over 65, episodes of painless bright red bleeding which may be severe<br>History of renal disease, aortic stenosis, on oral anticoagulation |
| Colorectal cancer | Usually over 50, painless rectal bleeding, blood mixed with stools.<br>History of weight loss, change is bowel habit, family history of polyps or colon cancer, may experience tenesmus if rectal cancer |
| Ischaemic colitis | Age over 65, sudden onset lower abdominal pain or cramping and diarrhoea mixed with blood<br>History of diabetes, hypertension, haemodialysis |
| Radiation enteropathy | Persistent or severe bleeding.<br>History of radiotherapy for pelvic cancer, chronic diarrhoea, rectal pain, urgency, fecal incontinence. Most commonly 2–5 months after radiotherapy |

## VAGINAL BLEEDING

- Ectopic pregnancy
- Menses
- Miscarriage
- STDS
- Bleeding disorder
- Hypothyroidism
- Malignancy
- OCP misuse

# HEMATURIA

- Infection
- Trauma
- Glomerulonephritis (HTN/recent URTI/
- Renal stone (past history/flank pain referred to testes
- Sickle cell anemia
- Drugs (rifampicin )
- Food (beets)
- Bleeding disorders (warfarin )
- STDS

# Examination stations

# Upper limb& lower limb

- Introduction as usual explain the examination to patient ask to take off his clothes for purpose of examination upper or lower
-

| | | **Upper limb** | **Lower limb** |
|---|---|---|---|
| 1 | inspection | **Swift**<br>**S scar**<br>**W wasting in muscles**<br>**I involuntary movement**<br>**F fasciculation**<br>**T tremors** | **Swift**<br>**S scar**<br>**W wasting in muscles**<br>**I involuntary movement**<br>**F fasciculation**<br>**T tremors** |
| 2 | tone | **Assess tone of**<br>✓ **shoulder**<br>✓ **Elbow**<br>✓ **Hand** | ✓ **Rolling**<br>✓ **lifting** |
| 3 | power | **Abduction**<br>**Adduction**<br>**Flexion**<br>**extension**<br>**Dorsiflexion**<br>**Palmar flexion** | **Hip flexion L1 L2**<br>**Hip extension L5 S1 S2**<br>**Knee flexion S1**<br>**Knee extension L3 L4**<br>**Ankle dorsiflexion L4 L5**<br>**Ankle planter flexion S1 S2**<br>**Big toe extension L5** |
| 4 | reflexes | ✓ **Biceps reflex C5 C6**<br>✓ **Brachioradialis reflex C5 C6**<br>✓ **Triceps reflex C6 C7** | ✓ **Knee reflex L3 L4**<br>✓ **Ankle reflex S1**<br>✓ **Planter reflex L5 S1**<br>✓ **Ankle clonus** |
| 5 | Co ordination | ✓ **Finger to nose**<br>✓ **dysdiadokinesia** | ✓ **Heel to knee and touch examiner hand** |
| 6 | Sensation<br>TOUCH<br>BIN BRICK | ❖ **Touch sensation**<br>✓ **C5 touch deltoid area**<br>✓ **C6 touch thumb**<br>✓ **C7 touch middle finger**<br>✓ **C8 touch little finger**<br>✓ **T1 TOUCH THE MEDIAL SIDE OF HUMERUS**<br>❖ **BIN BRICK** | **Touch sensation**<br>✓ **L1: inguinal region and the very top of the medial thigh**<br>✓ **L2: middle and lateral aspect of the anterior thigh**<br>✓ **L3: medial aspect of the knee**<br>✓ **L4: medial aspect of the lower leg and ankle**<br>✓ **L5: dorsum and medial aspect of the big toe**<br>✓ **S1: dorsum and lateral aspect of the little toe** |
| 7 | proprioception | ✓ **Thumb up and down** | ✓ **Big toe up and down** |
| 8 | Vibration | ✓ **Tuning fork over bony prominence** | ✓ **Tuning fork over bony prominence** |
| 9 | Gait | ✓ **Ask patient to walk** | ✓ **Start it in lower limb**<br>✓ **Could you please walk for me 4 steps** |

- To complete the examination: examine cranial nerve and lower limb or upper limb
- Offer help patient to redress
- Thank the patient

# Eye examination

- **Introduction** as usual/ explain the examination to patient

- **Visual acuity**
  - Ask patient read the last row you can read on Snellen chart
- **Visual field**
  - Ask patient Please cover your right eye and you also cover your left eye and please point to the direction of my finger
- **Eye movement**
  - As patient to fix his head and move with your finger by eyes in H movement
- **Pupil**
  - Direct
  - Consensual
  - Swinging test for relative afferent pupillary defect
- **Ophthalmoscopy examination**
  - Now I will examine your back of eye I need to switch light off and shine light in your eyes and give you medication to facilitate the examination is it ok for you?
  - Assess red reflex
  - Assess 4 quadrant of retina
  - Look at macula

- **To complete my examination:**
  - ✓ Color vision by ishihara plates
  - ✓ Slit lamp examination

| painless loss of vision | painful loss of vision |
|---|---|
| CRAO, CRVO | OPTIC NEURITIS |
| RETINAL DETACHMENT | GLUCOMA |
| VITROUS HE | PEMPORAL ARTERITIS |

Homonymous hemianopia (temporal in one and nasal in another) → optic tract lesion

Bi temporal hemianopia → optic chiasma lesion

Nasal and temporal hemianopia in same eye → optic nerve lesion

# Cranial nerve examination

**1 Olfactory** Do you have any problem in smell?

**2 Optic**
**3 Oculomotor**
**4 Trochlear**
**6 Abducent**
→ eye examination

**5 trigeminal**
- **Motor** → please clench your teeth
- **Sensor**
  - ophthalmic
  - Maxillary
  - Mandibular
- **Reflex**
  - mandibular reflex
  - Corneal reflex

## 7 Facial nerve

- ✓ ask patient to elevate eye brow up,,close eyes and don't let me to open it /show your teeth/blow your cheeks

## 8 Vestibule cochlear nerve

## 9 -10 Glossopharyngeal nerve and vagus nerve

- ✓ Do you have any problem in swallowing or cough
- ✓ Please open your mouth and say ahaaaa assess the uvala

## 11 Accessory nerve

- ✓ Could you elevate your shoulders and resist my hand?
- ✓ Could you turn your head against my hand?

## 12 hypoglossal nerve

- ✓ Please open your mouth look at tongue position and fasciculation
- ✓ Please protrude your mouth out look at deviation
- ✓ Can you push my hand by your tongue

To complete my examination I need to examine upper and lower limb as well

# Respiratory examination

General look around the patient (O2 delivery device, sputum pot, mobility aid, prescription)

- **Introduction**
- **Hand**
  - ✓ Inspection :cyanosis /Clubbing/nicotine staining/fine tremor/astreixis
  - ✓ Palpation : temperature/pulse in one minute /BP
- **Neck**
  - ✓ JVP wavy and compressible /measurement not more than 3 cm
  - ✓ Swelling /lymph nodes
- **Eye**
  - ✓ Pallor/jaundice
- **Mouth**
  - ✓ Central cyanosis
  - ✓ Please open your mouth and get your tongue up
  - ✓ Oral candidiasis from corticosteroid
- **CHEST EXAMIANTION**
  - ✓ Inspection AT END OF BED scar /rash/chest movement/RR
  - ✓ Palpation(Trachea/chest expansion/apex of heart count the ICS)
  - ✓ Percussion **TELL THE PATIENT I WILL TAPE YOUR CHEST /TAP ON CLAVICLE DIRECTLY**
  - ✓ Auscultation 3 ZONES /vocal resonance say 99
- **Back examination:**
  - Inspection scar /rash/chest movement
  - Palpation expansion
  - Percussion TELL THE PATIENT I WILL TAPE YOUR CHEST
  - Auscultation para spinal
- **Lower limb**
  - ✓ Edema
  - ✓ DVT signs
  - ✓ Erythema nodosum
- **To complete my examination** :
  - ✓ Detailed history
  - ✓ Peak flowmeter for lung function

# Abdominal examination

General look around the patient (mobility aid/stoma bag/surgical drain/feeding tube/prescription chart)

- **Introduction**
- **Hand**
  - ✓ Koilonychia/leukonychia/palmar erythema/ **Dupuytren's** contracture /clubbing / Asterixis **ask patient to stretch both arm and cock his hand backward for 30 sec**
- **Arm & axilla**
  - ✓ bruising /excoriation/needle track marks
  - ✓ acanthosis Nigerican/hair loss
- **neck**
  - ✓ JVP wavy and compressible
  - ✓ Swelling /lymph nodes
- **Eye**
  - ✓ Xanthlesma/ conjunctival pallor/jaundice/corneal arcus/perilimbal injection
- **Mouth**
  - ✓ Angular stomatitis/oral candidiasis/mouth ulcers/glossitis
- **Inspection of chest**
  - ✓ Spider navei/hair loss/ gynecomastia in male/breast atrophy in female
- **Abdominal EXAMIANTION**
  - ✓ Inspection scar/dilated veins/distension/pulsation/stoma
  - ✓ Palpation (now I will palpate your tummy is ok? do you have pain ?
    - Superficial palpation (note ant tenderness ,mass/guarding )
    - Deep palpation 9 area (liver/spleen/kidney/aorta)
  - ✓ Percussion TELL THE PATIENT I WILL TAPE YOUR abdomen
    - Percussion of liver
    - Percussion of spleen border
    - Percussion of bladder
    - Percussion of ascites
  - ✓ Auscultation
    - Bowel sounds
    - Aortic bruit
    - Renal artery bruit
- **Lower limb**
  - ✓ Edema
- **To complete my examination** :
  - ✓ examine genitalia/hernia orifices/rectal examination

# Cardiac examination

General look around the patient

- **introduction as usual explain to the patient the examination steps**
- **Hand**
    - ✓ Clubbing/splinter he/janway pates/pulse rate and volume/radio radial delay of Aortic dissection/collapsing pulse/BP
- **HEAD**
    - ✓ JVP visible not palpable
    - ✓ Hepato jugular reflex
    - ✓ Swelling /lymph nodes
- **Eye**
    - ✓ Jaundice/xanthlasma/ocular arcus
- **Mouth**
    - ✓ Cyanosis/ oral hygiene
- **Cardiac EXAMIANTION**

    **Ask patient please lie flat to examine your heart**

    - ✓ Inspection scar/contour of heart
    - ✓ Palpation
        - Trachea
        - Apex of heart and count intercostal space
        - Thrill at all area
        - Left parasternal heave of RT ventricular hypertrophy
    - ✓ percussion
    - ✓ Auscultation
        - Apex → mitral stenosis → mid diastolic murmur
        - Apex and to axilla → mitral regurge → pansystolic
        - Aortic area → aortic regurge → early diastolic murmur
        - Aortic area → aortic stenosis → ejection systolic
        - Carotid bruit
- **Back**
    - ✓ Auscultation
    - ✓ Sacral edema
- **Lower limb**
    - ✓ Edema
    - ✓ Scar for open heart surgery
- **To complete my examination** :
    - ✓ Detailed history

# Shoulder examination

- **Introduction**

Tell the patient that you will examine his shoulder include look ,feel ,move, and doing special test is it ok for you?

Can you take off top clothes for purpose of examiantion

- **Inspection**
    - ✓ Look anteriorly ,laterally and posterior for scar/bruising/laceration/skin discoloration/ muscle wasting
    - ✓ **Ask patient to push against wall check winging of scapula**
- **Feel**
    - ✓ Feel for skin temperature
    - ✓ Check tenderness at sternoclavicular joint/clavicle/ acromioclavicular joint/coracoid process/ deltoid muscle/ spine of scapula
- **Move (now I want you to do some movement like me)**
    - **Active movement**
    - ✓ Flexion
    - ✓ Extension
    - ✓ Abduction
    - ✓ Adduction
    - ✓ External rotation
    - ✓ Internal rotation
    - **Passive movement now I will do the same movement for you>>do you have pain?!!**
- **Special tests:**
    - ✓ Painful arc test
    - ✓ Drop test for supraspinatus injury
    - ✓ empty can test for supraspinatus impingement
    - ✓ Gerber test for subscapularis muscle
    - ✓ Scarf test
    - ✓ Resist External rotation for infraspinatus
- **To compete my examination:**
    - ✓ Examine cervical spine
    - ✓ Neurovascular examination of upper limb
- **Let me to help you to dress**
- **Do you have any concern?**
- **Clinical reasoning**
- **Do you have any further question?**
- **Thank you**
- **Wash your hand**

# Hand examination

- **Introduction**

Tell the patient that you will examine his hand include look, feel ,move, and doing special test is it ok for you?

- **Inspection**
    - ✓ Look for scar/bruising/laceration/skin discoloration/ muscle wasting
- **Feel**
    - ✓ Feel for skin temperature
    - ✓ Check tenderness at distal radius/distal ulna/radio ulnar joint/carpal bone/mid palmar space/fingers )
- **Move** (now I want you to do some movement like me)
    - **Active movement**
        - ✓ Dorsiflexion
        - ✓ Palmar flexion
        - ✓ Ulnar deviation
        - ✓ Radial deviation
        - ✓ Supination
        - ✓ Pronation
        - ✓ Make a fist
    - **Passive movement** now I will do the same movement for you>>do you have pain ?!!
    - **Function of hand (squeeze my fingerwith your hands /squeeze finger between thumb and index/pick up coin**
- **Neurovascular examination**
    - ✓ **Sensory** I will show you the feeling of this cotton after that close your eyes if you feel it tell me yes

      Assess sensation of radial/median/ulnar
    - ✓ **Motor**
        - Radial finger extension /supination
        - Median pronation

          Flexor digitorum profundus

          Abductor pollicis brevis
        - Ulnar forment test
- **To compete my examination:**
    - ✓ Examine elbow joint
    - ✓ Complete neurovascular examination of limb
    - ✓ Tinnle test
    - ✓ Phalen test
- **Let me to help you to dress**
- **Do you have any concern?**
- **Clinical reasoning**
- **Do you have any further question?**
- **Thank you**
- **Wash your hand**

# Knee examination

- **Introduction as usual /offer pain killer**

Tell the patient that you will examine his knee include look, feel, move, and doing special test

Is it ok for you? Please expose your lower limb for purpose of examination and let the under wear or boxer only

- **Inspection anteriorly/lateral/posterior**
    - Look for scar/bruising/laceration/skin discoloration/ muscle wasting
    - Assess the gait ask patient to walk
    - Can you sit for me and straight your leg?
    - Can you lye down for me on couch?
- **Feel**
    - Feel for skin temperature
    - Check tenderness at extensor tendon/patella/tibial tuberosity /joint line/medial ligament/Lateral ligament/fibula/back of knee
    - Patellar tap
    - Sweep test
    - Patellar apprehension test
- **Move**
    - **Active movement**
        - Can you bend leg for me?
        - Can you straight your leg for me?
    - **Passive movement** now I will do the same movement for you>>do you have any pain?!!

Special testes

- Mac Murry test for menisci injury
- Lachman test for ant cruciate ligament injury
- Anterior drawer test for ant cruciate ligament injury
- Posterior drawer test for post cruciate ligament injury
- Medial collateral stretch test
- Lateral collateral stretch test

- **To compete my examination:**
    - Examine hip and ankle
    - Complete neurovascular examination of lower limb
    - Review Ottawa knee rule for x ray if trauma
- **Let me to help you to dress**
- **Do you have any concern?**
- **Clinical reasoning**
- **Do you have any further question?**
- **Thank you**
- **Wash your hand**

# Hip examination

- **Introduction as usual**
  - ✓ Tell the patient that you will examine his hip includes look, feel, move, and doing special test is it ok for you?
  - ✓ Ask patient to take off his trouser except underwear
- **Inspection anterior/lateral/posterior**
  - ✓ Look for scar/bruising/laceration/skin discoloration/ muscle wasting
  - ✓ Ask patient to walk and see gait
  - ✓ While patient standing check Trendelenburg sign
- **Feel**
  - ✓ Feel for skin temperature
  - ✓ Check tenderness at greater trochanter/ASAS/gluteal area/qudricepes tendon /back of thigh
  - ✓ **Apparent leg length** from xiphisternum to medial malleolus )
  - ✓ **True leg length from** ASAS to medial malleolus)
- **Move**
  - ▪ **Active movement**
    - ✓ Flexion
    - ✓ Extension
    - ✓ Abduction
    - ✓ Adduction
    - ✓ Internal rotation
    - ✓ External rotation
  - ▪ **Passive movement** now I will do the same movement for you>>do you have pain?!!
- **Special testes**
  - ✓ Thomas test
  - ✓ Trendelenburg test
  - ✓ Faber test
- **To compete my examination:**
  - ✓ Examine knee joint and back
  - ✓ Complete neurovascular examination of limb
  - ✓ Review any image
- **Let me to help you to dress**
- **Do you have any concern?**
- **Clinical reasoning**
- **Do you have any further question?**
- **Thank you**
- **Wash your hand**

# Thyroid examination

- **introduction**
- **Hands**
  - ✓ Inspection **of (stigmata of thyroid disease)**
    - Thyroid acropachy
    - Onychosis
    - Palmar erythema
    - Peripheral tremor
    - Radial pulse
- **Face** ( dry skin/excessive sweating/eyebrow loss hair
- **Eyes** (lid retraction/lid lag /eye inflammation/exophthalmos/proptosis/eye movement )
- **Thyroid gland**
  - ✓ Inspection (mass/scar)
    - Ask patient to drink water and notice thyroid movement
    - Ask patient to protrude your tongue and notice thyroglossal cyst
  - ✓ Palpation of gland
  - ✓ Lymph node palpation
    - ✓ Submental
    - ✓ Submandibular
    - ✓ Pre-auricular
    - ✓ Post-auricular
    - ✓ Superficial cervical
    - ✓ Deep cervical
    - ✓ Posterior cervical
    - ✓ Supraclavicular
  - ✓ **Trachea** (tracheal deviation from goiter)
  - ✓ **Percussion of the sternum**
  - ✓ **Auscultation of the thyroid gland**
- **Reflexes**
  - ✓ Reflexes are assessed to screen for hyporeflexia, which is associated with hypothyroidism. The most commonly tested reflexes are the biceps reflex or the knee jerk reflex
- **Proximal myopathy**
  - ✓ ask the patient to stand from a sitting position with their arms crossed
- **Pretibial myxedema**

# Maxillofacial examination

- Great the examiner
- Wash your hand
- Introduction as usual
- Brief history
- Look( swelling, deformity ,wound ,contusion, bleeding )
- Feel (temperature, tenderness from occipital area moving anterior periorbital cheeks mandible)
- Move (ask patient to open and close mouth while you feel TMJ)
- Neurological assessment
  - ✓ Show feeling of cotton wool, and then close his eye
  - ✓ Supraorbital nerve &supratrochlear nerve
  - ✓ Infraorbital nerve
  - ✓ Mental nerve
- Special Test
  - ✓ Examination of eye H movement/pupil/
  - ✓ Examination of mouth (bleeding, broken teeth, mandibular fracture
  - ✓ Examination of nose (wound bleeding deformity septal hematoma
  - ✓ Examination of ear (wound bleeding hematoma laceration/otoscope/
  - ✓ Signs of fracture base of skull (raccon eye/battle sign/CSF otorrhea/CSF rhinorrhea/hemotympanium
- To complete my examination I need to review x ray IF TRAUMATIC
- Further question
- Thank patient
- Wash your hand

# Peripheral vascular examination

- Great the examiner
- Wash your hand
- Introduction as usual
- Explain the examination to the patient
- BRIEF HISTORY

| | Neck | Upper limb | Lower limb | Abdomen |
|---|---|---|---|---|
| **inspection** | --- | **Stigmata of vascular disease like loss of hair ,ulcer** | **Stigmata of vascular disease like loss of hair ,ulcer, look between toes** | **Aortic pulsation** |
| **palpation** | Carotid pulsation | Temperature<br>Radial pulse<br>Radio radial delay<br>Brachial pulse<br>BP | Temperature<br>Femoral pulse<br>Femoral radial delay<br>Popliteal artery pulsation<br>Posterior tibial pulsation<br>Dorsalis pedis<br>Ankle brachial index | Feel aortic pulsation |
| **auscultation** | Carotid bruit | -------- | Femoral artery bruit | Aortic bruit<br>Renal artery bruit |
| **sensation** | ---- | Touch sensation c5/c6/c7/c8 | Touch sensation<br>L1 /l2/l3/l4/l5/s1 | ----- |
| **tests** | -- | Allen test | Burger test | ------ |

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- Ask patient any further question
- To complete examination  cardiovascular examination
- Thank the patient
- Wash your hand

# Bimanual Female Genital examination

- Great the examiner
- Wash your hand
- Introduction as usual
- Chaperone
- Explain the examination to the patient

  Explain what the examination will involve:

  Today I need to carry out a vaginal examination. This will involve me using one hand to feel your tummy and the other hand to place two fingers into your vagina. This will allow me to assess the vagina, womb and ovaries. It shouldn't be painful, but it will feel a little uncomfortable. You can ask me to stop at any point."
- Consent
- Ask about pain and pregnancy
- Explain to the patient that they'll need to remove their underwear and lie on the clinical examination couch, covering them with the sheet provided.
- Position the patient in the modified lithotomy position: "Bring your heels towards your bottom and then let your knees fall to the sides."
- Abdominal examination (inspection/palpation)
- Vulval inspection
  - ✓ Scar
  - ✓ Discharge
  - ✓ Mass
  - ✓ Varicosities
- Ask patient to cough assess prolapse
- PV examination ask the patient is she still comfortable to complete the examination
  - ✓ Assess vaginal wall for any irregularities varicosities
  - ✓ Cervix
  - ✓ Fornices
- Bimanual examination of uterus
- Bimanual examination of adnexa
- Check any blood or discharge on gloves
- Thank the patient for their time. Tell her take your time to redress and I am waiting you outside for discussion
- Dispose of PPE appropriately and wash your hands.
- Summarize your findings.
- Document the examination in the medical notes including the details of the chaperone.
- To complete the examination examine the abdomen

# Speculum vaginal examination

- Great the examiner
- Wash your hand
- Introduction as usual
- Chaperone
- Explain the examination to the patient

  Today I need to carry out a speculum examination. The procedure will involve me inserting a small plastic device called a speculum into the vagina. This will allow me to visualize the neck of the womb. It shouldn't be painful, but it will feel a little bleeding after the procedure.

  Uncomfortable. You can ask me to stop at any point. You may experience some light vaginal Consent
- Explain to the patient that they'll need to remove their underwear and lie on the clinical examination couch, covering them with the sheet provided.
- Consent
- Ask about pain and pregnancy
- Please bring your heels towards your bottom and then let your knees fall to the sides."
- Vulval inspection
  - ✓ Scar
  - ✓ Discharge
  - ✓ Mass
  - ✓ Varicosities
- Ask patient to cough assess prolapse
- Speculum examination ask the patient is she still comfortable to complete the examination
- Cervix visualization
  - ✓ Ectropion/ulcer/mass/bleeding
- Remove the speculum
- Thank the patient for their time. Tell her take your time to redress and I am waiting you outside for discussion
- Dispose of PPE appropriately and wash your hands.
- Summarize your findings.
- Document the examination in the medical notes including the details of the chaperone.

## Neck examination

- **Introduction**

Tell the patient that you will examine your neck, include look, feel, move, and doing special test is it ok for you?

- **Inspection**
  - ✓ Look for scar/bruising/laceration/skin discoloration/ muscle wasting
- **Feel temperature, tenderness/FEEL NATERIOR NECK**
- **Move**
  - ✓ Flexion
  - ✓ Extension
  - ✓ Lateral flection
  - ✓ Rotation
- **Special tests**
  - ✓ Barber test flexion or extension cause electrical shock in legs associated with MS
  - ✓ KERING SIGN
  - ✓ BRUDZINSKI SIGN
  - ✓ ADSON TEST
- **NEUROVASCULAR EXAMIANTION**

## ELBOW examination

- **Introduction**

Tell the patient that you will examine your ELBOW, include look, feel, move, and doing special test is it ok for you?

- **Inspection**
  - ✓ Look for scar/bruising/laceration/skin discoloration/ muscle wasting /carrying angle
- **Feel**
  - ✓ temperature, tenderness/medial epicondyle/lateral epicondyle/olecranon/biceps tendon/radial head /palpate brachial and radial pulse
- **Move**
  - ✓ Flexion
  - ✓ Extension
  - ✓ Supination and pronation
  - ✓ Check power
- **Special tests**
  - ✓ Tennis elbow
  - ✓ Golfer elbow

## Back examination

- **Introduction**

Tell the patient that you will examine your back, include look, feel, move, and doing special test is it ok for you?

Please take off you top clothes for the purpose of examination

- **Inspection**
  - ✓ Look for scar/bruising/laceration/skin discoloration/ muscle wasting /deformity /kyphosis/lordosis
- **Feel** temperature, tenderness
- **Move**
  - ✓ Flexion
  - ✓ Lateral flexion

- **Special tests**
  - ✓ Straight leg test
  - ✓ Femoral stretch test
  - ✓ Bowstring test
- **Neurological examination of lower limb**

## Ankle examination

- **Introduction**

Tell the patient that you will examine your ankle, include look, feel, move, and doing special test is it ok for you?

Please expose your both legs for the purpose of examination

- **Inspection**
  - ✓ Look for scar/bruising/laceration/skin discoloration/ muscle wasting /deformity /kyphosis/lordosis
- **Feel** temperature, tenderness, dorsalis pedis/tibilais posterior
- **Move**
  - ✓ dorsiflexion
  - ✓ plantar flexion
  - ✓ eversion
  - ✓ inversion
    - passive movement
    - check power

- **Special tests**
  **Calf squeeze test**
  **Morton neuroma**

# Communication stations

# Breaking bad news

**Died or going to die or medical illness like brain tumor, cerebral hge, stroke or liver cirrhosis**

- Wash your hands
- Great the examiner
- I will close my telephone made bleep silent and inform charge nurse about my place
- I will endorse my patients to my colleague
- Ask about additional notes
- Introduce your self
- Confirm identity and relation to patient
- Offer chaperone
- How much you know about Mr. ……..medical status?
- Give brief information then break the news
- Silence
- Show empathy
- Give more details and break the news again
- Support self-blame
- Do you want me to contact someone to come to be with you?

***I want to see him now***

Ok give me 5 minutes to prepare him and remove the tubes and devices connected to him and I will accompany you to see him

- Religious belief
- Bereavement office for funeral arrangement
- Death certificate
- Coroner team if applicable
- Organ donation card??

I will leave now and return within 15 minutes our sister with you to help you if you need anything please ask me

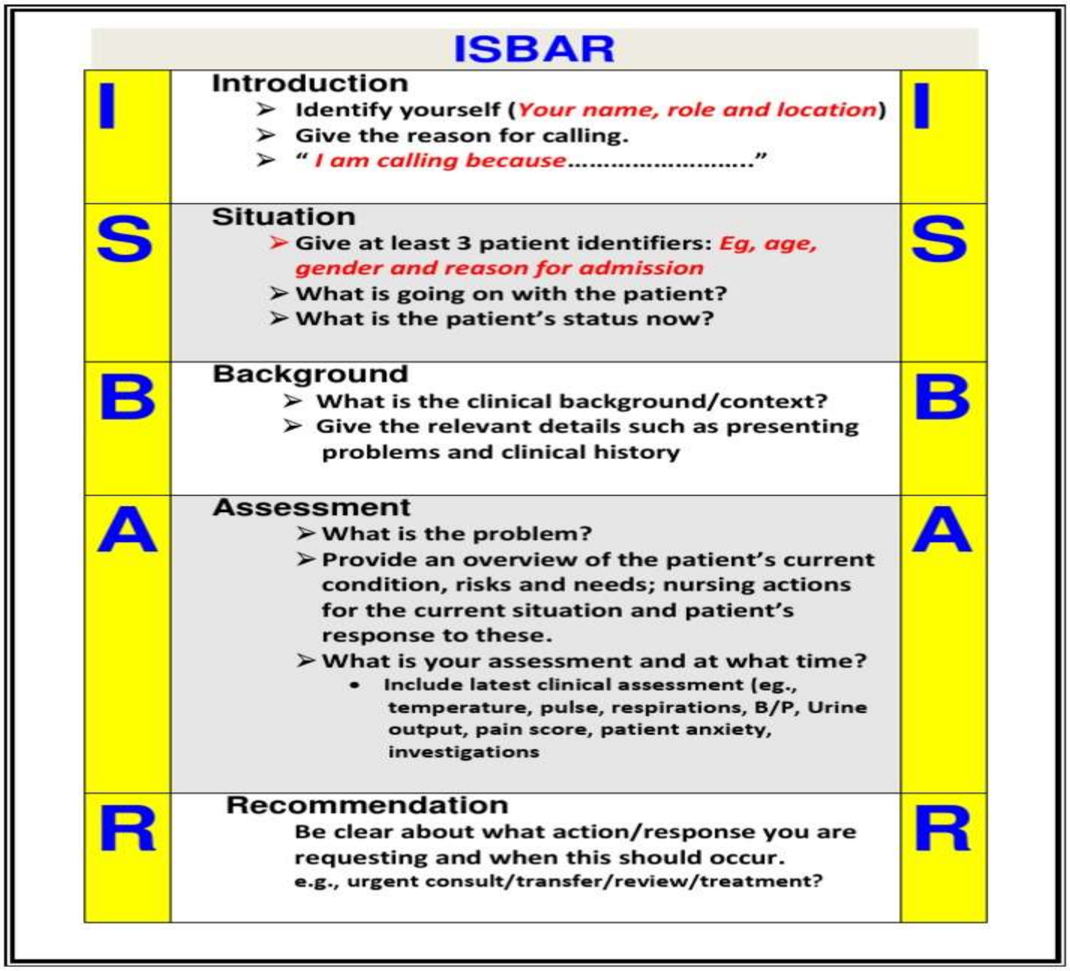
# NAI

**ASK bout**

- **Child**
  - ✓ Planned pregnancy
  - ✓ Any complication
  - ✓ Nursery and name
  - ✓ School and name
  - ✓ vaccination
- **Mother**
  - ✓ Age
  - ✓ Occupation
  - ✓ Past history
  - ✓ Registration with family physician
  - ✓ Social history
  - ✓ Any violence any problem with police
  - ✓ Home address
- **Partner**
  - ✓ Age
  - ✓ Occupation
  - ✓ Is he the father?
  - ✓ Social history
  - ✓ Violence behavior
  - ✓ Police involvement

## Difficult referral

- **Read the task well**
- **Wash your hand**
- **Great the examiner**
- **Remember structural approach for referral (ISBAR)**
  - ✓ I introduce yourself and confirm the specialty you talk to him
  - ✓ S SITUATION
  - ✓ B BACKGROUND
  - ✓ A ASSESSMENT
  - ✓ R RECOMMENDATION



**ISBAR**

| | | |
|---|---|---|
| **I** | **Introduction**<br>➢ Identify yourself (*Your name, role and location*)<br>➢ Give the reason for calling.<br>➢ " *I am calling because*........................." | **I** |
| **S** | **Situation**<br>➢ Give at least 3 patient identifiers: *Eg, age, gender and reason for admission*<br>➢ What is going on with the patient?<br>➢ What is the patient's status now? | **S** |
| **B** | **Background**<br>➢ What is the clinical background/context?<br>➢ Give the relevant details such as presenting problems and clinical history | **B** |
| **A** | **Assessment**<br>➢ What is the problem?<br>➢ Provide an overview of the patient's current condition, risks and needs; nursing actions for the current situation and patient's response to these.<br>➢ What is your assessment and at what time?<br>• Include latest clinical assessment (eg., temperature, pulse, respirations, B/P, Urine output, pain score, patient anxiety, investigations | **A** |
| **R** | **Recommendation**<br>Be clear about what action/response you are requesting and when this should occur.<br>e.g., urgent consult/transfer/review/treatment? | **R** |

- **Introduce your self**
- **Confirm the name and specialty**
- **Be polite**
- **Don't accept unsafe plan**

- **Don't interrupt him**
- Give him time to think about the case
  - ✓ If he is frustrating from ER (I am sorry that you feel that but I have a specific concern for this patient and explain the concern )
  - ✓ If refuse offer him to send any colleague to assess the patient if told you all are busy
  - ✓ I can give you time to think about the case and call you back after 5 minutes
  - ✓ If told you please don't disturb me
  - ✓ I am sorry I will inform my consultant to discuss the case with you or with your consultant as I have safety issue regarding this patient
  - ✓ If he told you I will assess the patient after finishing the operation accept the plan no problem and ask him do you want me to do anything to the patient till your assessment?
  - ✓ Thank you
  - ✓ Wash your hand

## Example of smith fracture:

- ✓ Hello I am dr abdelaal ED register can I confirm your name and specialty please
- ✓ How are you dr >>>>>>
- ✓ Do you have 5 minutes discuss a case with you?
- ✓ THANJ YOU DR >>>>>>
- ✓ I have 50 year old male diabetic presenting to ER after FOOSH and experience RT wrist pain and deformity I did x ray for RT hand and I identify smith fracture I gave the patient analgesic intravenous and assess the neurovascular of RT hand and my recommendation for orthopedic assessment

Thank you

# Failing collogue

- **Wash your hand**
- **Great the examiner**
- **Introduce your self**
- **Take consent to speak with him**
- **Start with given event and be clear from the start**
  (Like there is patient you referred to hematology physician and the patient has pneumothorax)

We are colleagues since many years and I know how you are competent but I notice recently decline in your performance

- Can you tell me what the problem is? Or what are the reasons of declining performance?
- Give him time to speak and you listen and listen
- Then ask about
  - ✓ Sleep
  - ✓ Alcohol
  - ✓ Illicit drugs
  - ✓ Extra shifts
  - ✓ Social problems with family
- **Offer help as much as possible**
- **Offer meet within 2 days to drink coffee**
- **Management plan**
  - ✓ Please you should leave the shift now endorse your patient to me
  - ✓ Take rest (sick leave)
  - ✓ I will write incident report for safety issues
  - ✓ And I can refer you to psychiatry team they will help you more

- **Is it ok with you?**
- **Further question**
- **Thank the patient**
- **Wash your hands**

# Counselling

May be

- ✓ DM
- ✓ Addison disease
- ✓ Bronchial asthma
- ✓ Pregnant with contact chicken pox

- **Wash your hand**
- **Great the examiner**
- **Introduce your self**
- **Confirm identity of patients**
- **Take consent**
- **Offer chaperone**
- **Ask about the child and how is he now?**
- **Then ask open question how much you know about** ……………………?
- At the end I will give you brochures and leaflets for more information about the disease
- I will give follow up referral with the specialty

For examples: BRONCHIAL ASTHMA

- Definition
  - ✓ Narrowing of airway passage of lung due to allergic
- Types
  - ✓ Not applicable
- Symptoms and signs
  - ✓ Shortness of breathing and using accessory muscle for respiration like muscles of neck ,abdomen
- Medication compliance
  - ✓ Medication compliance is very important in this disease to reduce the number of attacks and achieve patient comfortability
- Complication
  - ✓ Repeated infection
  - ✓ Deterioration of lung function 'repeated hospital admission
  - ✓ Weakness
- Triggers to complications
  - ✓ Medication incompliance and exposure to dust or smoke or perfumes and upper respiratory tract infection
- Red flags
  - ✓ Like decrease saturation or patient using accessory muscles or not improved after using inhaler or there is associated fever
- **Do you have any further question?**
- **Thank you**
- **Wash your hand**

# Chicken pox counselling

- Chicken pox is infectious disease caused by virus called herbes zoster once you had infection you can't catch it again as immunity is lifelong
- There is some symptoms and signs for chicken pox like fever fatigue, skin watery blister then after few days the blister burst and crust formation then healing
- Method of infection, contact with a person with chicken pox as 2 days before blister appear till crust formation
- There is vaccination for prophylaxis of chicken pox but we can't use it with pregnancy you can take after delivery

If you are contact with chicken pox patient during your pregnancy

  - If you are immune and take infection before so don't worry noting to be done
  - If you aren't sure about your past infection we can do blood test to check immunity
  - If you are not immune and get contact with chicken pox patient you need to take varicella immunoglobulin within 10 days of contact and before blister appear
- Risk of baby catching chicken pox depend on stage of pregnancy

If you catch chicken pox

- **Up to 28 weeks**
  - No risk of miscarriage but damage to eye limb legs may occur in 1 % so I will referee you to fetal medicine for scanning
- **Between 28-36 weeks**
  - The virus stay in baby skin and my cause shingles at first few years of life
- **After 36 weeks**
  - Baby may infected and born with chicken pox
- **Around time of birth** within 7 days
  - the baby have sever chicken pox
- Medication for the pregnant during pregnancy is acyclovir if more than 20 weeks
- Brochures and leaflet
- Do you have question
- Wash your hand

# DNR

- **Wash your hand**
- **Great the examiner**
- **Introduce your self**
- **Confirm identity and relation to the patients**
- **I have issue to discuss with you about MR…………….**
- **Is it ok?**
- **Do you have someone to attend with us our discussion?**
- **Do you mind our sister attend as chaperon?**
- **How much do you know about MR**……………?
- OK

MR……..PRESENTING TO OUR HOSPITAL AFTER ROAD TRAFFIC ACCIDENT WITH SUSTAINED BRAIN DAMAGE AND INTERNAL HEMORRAGE IN CHEST AND ABDOMEN RESUSCITATION EFFORTS DONE BUT THE PATIENT IN ADVANCE STAGE

NEUROSURGICAL CONSULTANT ASSESS HIM AND DECIDETHET IF THE HEART STOP PUMPING DON'T DO CHEST COMPRSSION OR START CARDIOPULMONARY RESUCITATION DUE TO ADVSNCE OF HIS ILLNESS

## WHAT HAPPENED TO MR …………..?

HE HAS MULTIPLE INJURIES DUE TO ROAD TRAFFIC ACCIDENT OUR RESUSCITATION TEAM INTODUCE TUBE IN HIS MOUTH FOR BREATHING AND INTRODUCE IV LINE FOR MEDICATION AND BLOOD TRANSFUSION AND THE CASE NOW IN ADVSNCED STAGE SO THE CONSULTANT DECIDE DON'T DO CPR IF HEART STOP PUMPING

## I WANT TO GO ANOTHER HOSPITAL?

IT IS YOUR RIGHT TO GO ANOTHER HOSPITAL BUT TRANSEFER NOW IS VERY RISKY AND I THINK ME AND YOU DON'T WANT MR …….TO SUFFER OR FEEL MORE PAIN ALSO OUR HOSPITAL IS TERTIARY HOSPITAL AND WE HAVE CERTIFIED CONSULTANT IN NEURO SURGERY

- **DO YOU WANT ME TO CONTACR ANY ONE TO COME TO YOU?**
- **DO YOU HAVE FURTHER QUESTION**?
- **THANK YOU**
- **WASH YOUR HAND**

# LEGAL HIGH

It is group of medication available in head shops has sympathomimetic effect like marijuana and opiates

Forms:

  - ✓ Iv
  - ✓ Tablets
  - ✓ Smoking

- ❖ **Wash your hands**
- ❖ **Great the examiner**
- ❖ **Introduce your self**
- ❖ **Confirm identity pf the patient**
- ❖ **Do you have someone to attend with us our discussion?**
- ❖ **Do you mind our NURSE attend as chaperon?**
- ❖ **Do you have pain so I can offer pain killer to you?**
- ❖ **How can I help you today?**

***I have palpitation***

- ❖ Sorry to hear that
- ❖ I want to move the patient to resuscitation room and check vital signs and connect monitor
- ❖ Can you tell me more about palpitation?

Take history as usual ask about the name of high legal and form and amount

- ❖ **Past medical history**
- ❖ **Social history**
- ❖ **Travel history**
- ❖ **concern**
- ❖ **Management plan:**
  - ✓ Keep you in observation
  - ✓ Examine your heart and lung
  - ✓ Run some blood testes like FBC, urea and electrolytes coagulation profile,Do heart tracing ,Consult toxibase, Consult cardiology doctor
  - ✓ I will give you medication for anxiety
  - ✓ After that I will discuss with you the final management plan

- ❖ My advice to you to take off this drugs because it has harm effect on your body
- ❖ **Do you have further question**
- ❖ **Thank you**
- ❖ **Wash your hand**

# Under age require MAP

- Start as sexual history station
    - ✓ Patient
    - ✓ Intercourse
    - ✓ Partners
- Past history
- Social history
- Recent travel
- concern
        - **Fraser criteria**

**Unprotected sex has many complications like pregnancy and STDs**

- ✓ Do you understand my advise
- ✓ Do you want to involve your parents in our discussion?
- ✓ Are you continuing intercourse without contraceptive pills?
- ✓ Her best interest to take the pills (came in window)
- ✓ Her physical and mental health will suffer if not take the pills
    - Gillick competency
- ✓ Can you recall what I said please to be sure that I explained it correctly?

- Management plan
    - ✓ I will prescribe the pills for you and I want you to know some important information
    - ✓ The effectiveness of this pills is high if taken within 72 h from intercourse, there is side effects of the pills likes vomiting ,,I vomiting happened please return again to emergency department to take another dose
    - ✓ I will arrange GP appointment for follow up but If the menstrual period late please come to emergency department again
    - ✓ Try to involve your parents

# NEEDLE STICK INJURY

- ❖ Wash your hand
- ❖ Great the examiner
- ❖ Introduce your self
- ❖ Confirm name and department
- ❖ I think you have concern to discuss with me today?

    I have needle stick

- ❖ Sorry to hear that
- ❖ Do you have pain so I can offer you pain killer
- ❖ Can you tell me more what happened in details?
- ❖ When this happened?
- ❖ Was there is any first aid done ?
- ❖ Yes I wash my hand by water
- ❖ Very good

Then ask about (needle/patient/donor)

**Needle**

- ✓ What is the procedure?
- ✓ The needle hollow or solid
- ✓ Is there is blood noted on needle
- ✓ Puncture is deep or superficial
- ✓ Did you wear gloves or no?

**Patient**

- ✓ Do you have any medical diseases?
- ✓ Are you HB immunized what is your titer?

**Donor**

- ✓ Do you know the medical condition of the patient?
- ✓ Why patient admitted?
- ✓ How old?
- ✓ Is your patient known HCV OR HVB OR HIV OR ACUTE LIVER DISEASE?
- ✓ Is the patient recorded IVDU or homosexual?
- ✓ ANY ILLICIT DRUGS?
- ❖ What is your concern now?

    I am afraid from GETTING INFECTIOUS DISEASES HIV AND I WANT POST PROPHYLAXIS EXPOSURE

- ❖ Your concern is valid
- ❖ Our management plan is:

- ✓ The risk of transmission for HBV 30 % HCV 3 % HIV 0.3 %
- ✓ Check immunization status
- ✓ Blood sample for HVB antibodies title
- ✓ I will talk to registrar covering the ward to take consent from donor for virology screening
- ✓ Provide the patient with occupational health clinic
- ✓ Indication of post exposure prophylaxis
  - Significant exposure to blood
  - If donor HIV or suspected to be HIV
  - Deep puncture

**Benefits prophylaxis 80 %**

**Side effect nausea vomiting dizziness headache fatigue and liver dysfunction**

- ❖ **My advice to you :**
  - ✓ don't donate blood until full clearance from occupational clinic
  - ✓ Protected sexual intercourse
- ❖ **Do you have further question**
- ❖ **Thank you**
- ❖ **Wash your hand**

# Consent from the source

- **Wash your hands**
- **Great the examiner**
- **Introduce your self**
- **Confirm identity of the patient**
- Mr.   >>there is event happened and I want to discuss it with you
- Is it ok for you?
- I invite  one nurse to attend with us as chaperone
- Our colleague  after taking blood sample from you accidently brick her finger by the needle and develop something called needle stick injury now there is possibility of transmission of several disease like HCV , HBV and HIV
- So I am here to discuss with you your agreement to take blood sample from you to ensure that you don't have these viruses ,,in case we discover unfortunately  you have any of these viruses we need to provide our collogue by prophylaxis medication within timeframe  and as well provide you by medical treatment ,,,I want also to explain the possibility of transmission of these diseases  HVB 30 % HCV 3%, HIV 0.3%

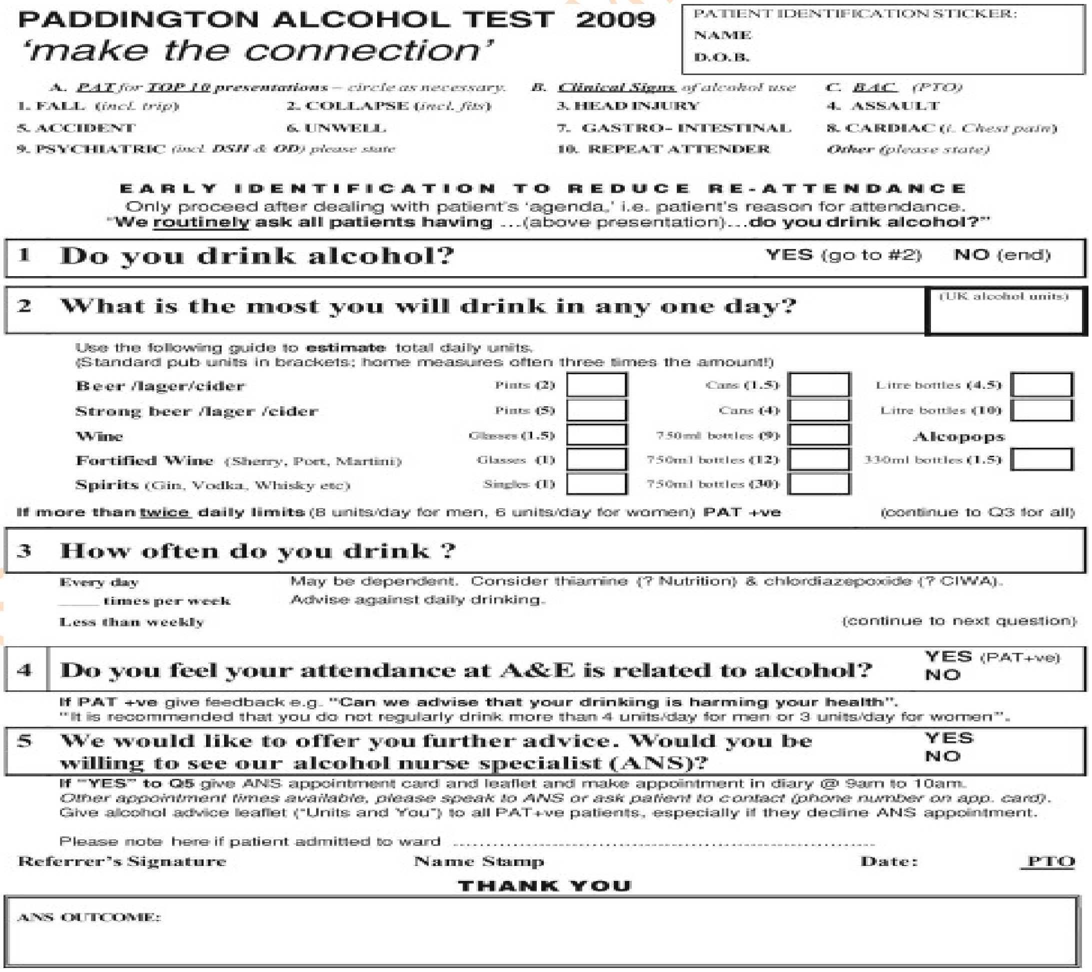
- **Are you agreeing for blood sampling?**
- **Do you want me to explain anything regarding the incident?**
- **Do you have and medical disease?**
- **What is the reason of admission?**
- **Do you smoke?**
- **Do you drink alcohol?**
- **By chance do you take any illicit drug?**
- **Do you take any blood transfusion?**
- **By chance do you do any tattooing?**
- **Do you have any further question?**
- **Thank you**
- **Wash your hand**

# Alcohol intoxication

- Wash your hands
- Great the examiner
- Introduce your self
- Confirm identity of the patient
- Offer pain killer
- Offer chaperon
- How can I help you today
- What type of alcohol you drink?
- With who you drink?
- When you drink?
- Do you have any problem with the police before?
- I will assess the alcohol dependency risk is it ok with you?
- PADDINGTON ALCOHOL TEST

How often you drink more than 8 units in male or 6 units in female in single occasion?

Do you think your attendance to ER related to alcohol drinking?



**PADDINGTON ALCOHOL TEST 2009**

*'make the connection'*

PATIENT IDENTIFICATION STICKER:
NAME
D.O.B.

A. ***PAT** for **TOP 10 presentations*** – *circle as necessary.*
B. ***Clinical Signs** of alcohol use*
C. ***BAC*** *(PTO)*

1. FALL *(incl. trip)*
2. COLLAPSE *(incl. fits)*
3. HEAD INJURY
4. ASSAULT
5. ACCIDENT
6. UNWELL
7. GASTRO- INTESTINAL
8. CARDIAC *(i. Chest pain)*
9. PSYCHIATRIC *(incl. DSH & OD) please state*
10. REPEAT ATTENDER

***Other** (please state)*

**EARLY IDENTIFICATION TO REDUCE RE-ATTENDANCE**

Only proceed after dealing with patient's 'agenda,' i.e. patient's reason for attendance.
"**We routinely ask all patients having** ...(above presentation)...**do you drink alcohol?**"

**1 Do you drink alcohol?** **YES** (go to #2) **NO** (end)

**2 What is the most you will drink in any one day?** (UK alcohol units) ☐

Use the following guide to **estimate** total daily units.
(Standard pub units in brackets; home measures often three times the amount!)

| | | | | | | |
|---|---|---|---|---|---|---|
| **Beer /lager/cider** | Pints (2) | ☐ | Cans (1.5) | ☐ | Litre bottles (4.5) | ☐ |
| **Strong beer /lager /cider** | Pints (5) | ☐ | Cans (4) | ☐ | Litre bottles (10) | ☐ |
| **Wine** | Glasses (1.5) | ☐ | 750ml bottles (9) | ☐ | **Alcopops** | |
| **Fortified Wine** (Sherry, Port, Martini) | Glasses (1) | ☐ | 750ml bottles (12) | ☐ | 330ml bottles (1.5) | ☐ |
| **Spirits** (Gin, Vodka, Whisky etc) | Singles (1) | ☐ | 750ml bottles (30) | ☐ | | |

**If more than twice daily limits** (8 units/day for men, 6 units/day for women) **PAT +ve** (continue to Q3 for all)

**3 How often do you drink ?**

**Every day** May be dependent. Consider thiamine (? Nutrition) & chlordiazepoxide (? CIWA).
_____ **times per week** Advise against daily drinking.
**Less than weekly**
(continue to next question)

**4 Do you feel your attendance at A&E is related to alcohol?** **YES** (PAT+ve) **NO**

**If PAT +ve** give feedback e.g. "**Can we advise that your drinking is harming your health**".
"It is recommended that you do not regularly drink more than 4 units/day for men or 3 units/day for women".

**5 We would like to offer you further advice. Would you be willing to see our alcohol nurse specialist (ANS)?** **YES** **NO**

**If "YES" to Q5** give ANS appointment card and leaflet and make appointment in diary @ 9am to 10am.
*Other appointment times available, please speak to ANS or ask patient to contact (phone number on app. card).*
Give alcohol advice leaflet ("Units and You") to all PAT+ve patients, especially if they decline ANS appointment.

Please note here if patient admitted to ward ..............................................................................

**Referrer's Signature** **Name Stamp** **Date:** PTO

**THANK YOU**

ANS OUTCOME:

- **I will assess alcohol withdrawal risk is it ok with you?**
- Do you have anxiety ,sweats, feel sick through up ,heart racing ,or tactile sensation in your skin
- **Past medical history**
- **Social history**
- **concern**
- I believe that you have risks for alcohol dependency so I will keep you in observation room and do general examination and run some blood tests for you like FBC,U&E ,VBG ,TOXICOLOGY screen and consult toxibase ,and do heart tracing then I will give you medication to ease your symptoms chlordiazperoxide also I will give you written instruction how to change drinking habits and give you follow up with alcohol specialist for further management plan
- **Do you have further question**
- **Thank the patient**
- **Wash your hands**

# MAJOR INCIDENT

- DEFINITION
- CATEGROIES
- WAYS OF COMMUNICATION BETWEEN DIFFERENT TEAM
- NOTIFICATION BETWEEN TEAMS
- PREPARATION
- HOW TRIAGE THE PATIENT
- DEBRIFING

- Great the examiner
- Introduce your self
- CONFIRM IDENTITY AND LEVEL
- I will discuss with you toady major incident
- How much do you know about major incident planning?
- Major incident definition life causalities affecting hospital resources
- Categories
  - ✓ Major external incident large number of causality and hospital functions will be stopped
  - ✓ External incident large number of casualties
  - ✓ Internal incident significant on hospital function
- Ways of communication
  - ✓ M major incident stand bye or cleared
  - ✓ E external location
  - ✓ T type of incident
  - ✓ H hazards
  - ✓ A access to location and exit
  - ✓ N number of causalities (p1 p2 p3)
  - ✓ E emergency services
- Notification
  - ✓ Major incident stand bye potential incident so the hospital should prepared
  - ✓ Major incident declared Incident confirmed
  - ✓ Major incident cancelled incident not occur
  - ✓ Major incident stand down the incident is over or special arrangement done
- Preparation

All staff should be informed immediately and roles assigned
Er should be cleared from patients as possible
The staff takes action card
All doors should be closed except emergency

Security informed

Prepare area for media and press

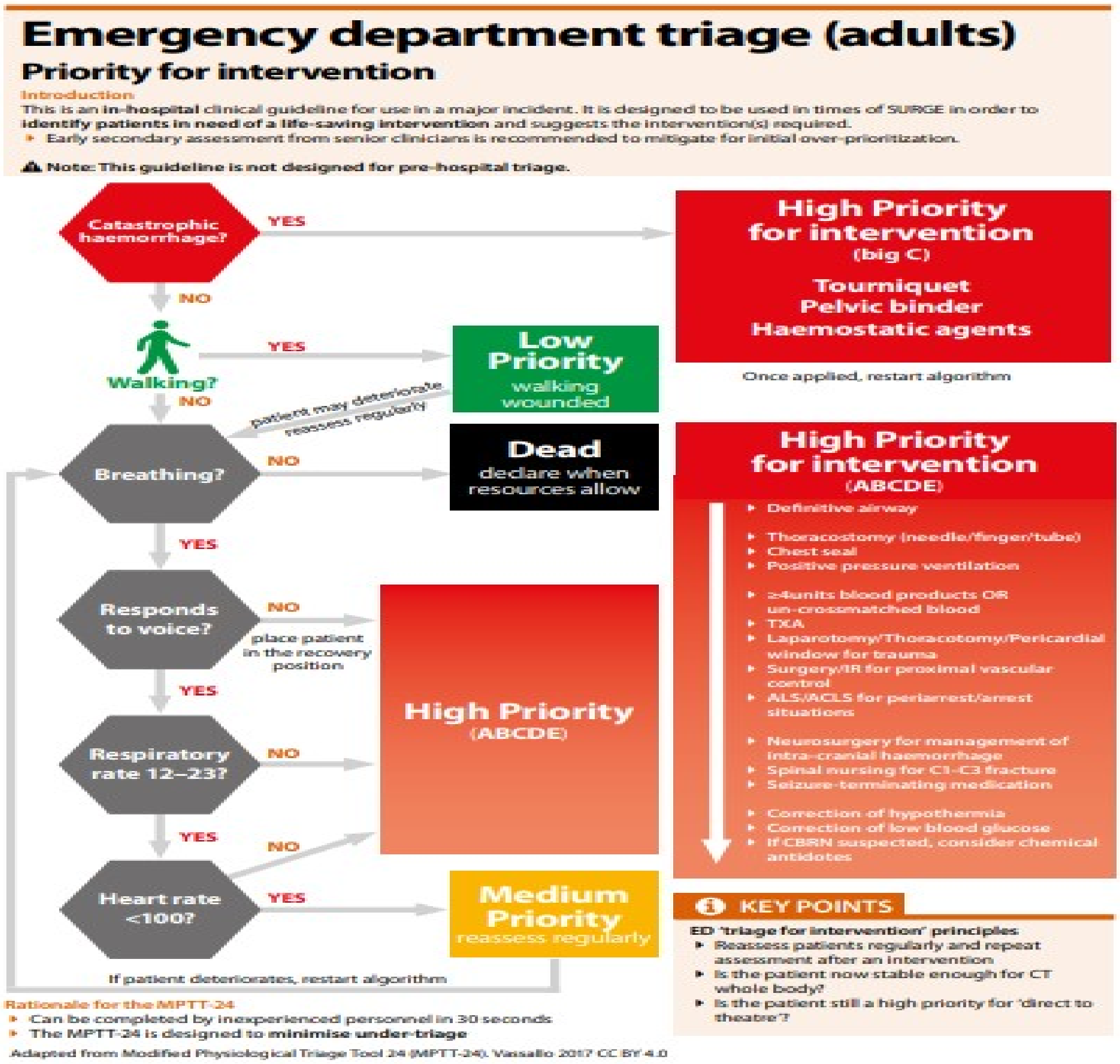
- **Triage**

**3 categories**

- ✓ **Priority 1** like shock or cardiopulmonary arrest or cerebral hge
- ✓ **Priority 2** like serious injuries but at the moment stable but if ignored will collapse
- ✓ **Priority 3** patient moderate to minor injuries

- **Debriefing**

Positive and negative issues about the incident response



**Emergency department triage (adults)**

**Priority for intervention**

Introduction

This is an **in-hospital** clinical guideline for use in a major incident. It is designed to be used in times of SURGE in order to **identify patients in need of a life-saving intervention** and suggests the intervention(s) required.

- Early secondary assessment from senior clinicians is recommended to mitigate for initial over-prioritization.

⚠ **Note: This guideline is not designed for pre-hospital triage.**

Catastrophic haemorrhage?
YES
NO
High Priority for intervention (big C)
Tourniquet
Pelvic binder
Haemostatic agents
Once applied, restart algorithm
Walking?
YES
NO
Low Priority walking wounded
patient may deteriorate reassess regularly
Breathing?
NO
Dead declare when resources allow
YES
Responds to voice?
NO
place patient in the recovery position
YES
Respiratory rate 12–23?
NO
YES
Heart rate <100?
NO
YES
High Priority (ABCDE)
Medium Priority reassess regularly
If patient deteriorates, restart algorithm

**High Priority for intervention (ABCDE)**

- Definitive airway
- Thoracostomy (needle/finger/tube)
- Chest seal
- Positive pressure ventilation
- ≥4units blood products OR un-crossmatched blood
- TXA
- Laparotomy/Thoracotomy/Pericardial window for trauma
- Surgery/IR for proximal vascular control
- ALS/ACLS for periarrest/arrest situations
- Neurosurgery for management of intra-cranial haemorrhage
- Spinal nursing for C1–C3 fracture
- Seizure-terminating medication
- Correction of hypothermia
- Correction of low blood glucose
- If CBRN suspected, consider chemical antidotes

**KEY POINTS**

**ED 'triage for intervention' principles**

- Reassess patients regularly and repeat assessment after an intervention
- Is the patient now stable enough for CT whole body?
- Is the patient still a high priority for 'direct to theatre'?

Rationale for the MPTT-24

- Can be completed by inexperienced personnel in 30 seconds
- The MPTT-24 is designed to **minimise under-triage**

Adapted from Modified Physiological Triage Tool 24 (MPTT-24). Vassallo 2017 CC BY 4.0

# Missed pneumothorax

- Wash your hand
- Great the examiner
- Ask any additional notes
- Introduce your self
- Confirm identity and relation to the child
- Nice to meet you Mr. >>>
- I have issue to discuss with you about your child …………….
- Is it ok?
- Do you have someone to attend with us our discussion?
- Do you mind our sister attend as chaperon?
- Yesterday you brought your child to our department complaining from shortness of breathing and chest pain and seen in ER and discharged home is it right?
- How is your child now? Where is he now?
- After reviewing the x ray again we found there is little air outside the lung called pneumothorax which is missed yesterday so we called you today for reexamining the child again
- Patient angry now give him time till finish his emotions
- Start to re assure the father that air outside lung is very little so missed yesterday and inform him that we have back up system in our hospital and radiology consultant review all imaging done for all patient in emergency to make sure that not miss any diagnosis so we called you back to make sure the child is ok and provide you instruction regarding pneumothorax and red flag instruction when come back to ER
- If still angry try to re assure him again and tell him that you will write incident form to assure to prevent that happening in the future and we all learn from like this incident
- No can I want to assess the child is it ok?
- If ask I want to see the doctor who see the child tell him that you are the most senior ED physician and I am very happy and ready to answer any question or concern
- Try to distract him to do official complaint if insist help him
- Give Advice: no flight no diving return to ER if chest pain
- Do you have further question
- Thank you
- Wash your hand

# TETANUS VACCIN CONFLICT

- Wash your hand
- Great the examiner
- Ask any additional notes
- Introduce your self
- Confirm identity and relation to the child
- Nice to meet you Mr. >>>
- How can I help you today

I refuse tetanus vaccination to my child

Why you refuse can you explain to me your concern?

I am afraid fro autism

Why you think about autism

Because I know a child in my family has autism after tetanus vaccine

I appreciate your concern

Let me explain to you some facts about tetanus disease

Tetanus is a serious disease caused by bacteria found at soil this bacteria release tetanus toxin and infection occurs when the bacteria breach the skin in various types of trauma like cut wound or laceration or puncture wound or burn ,, this bacteria is capsulated so we can't eradicate it but we have a prophylaxis against the disease, incubation period from 4-14 day before symptoms appear and death is a frequent complication of this disease so refusing the vaccine put your child at high risk of tetanus disease

Indication of tetanus vaccine

- ✓ Tetanus prone wounds like:
- ✓ More than 6 hour
- ✓ Devitalized tissue
- ✓ Puncture wound
- ✓ Foreign body
- ✓ Open fracture

Absolute Contraindication to tetanus vaccine is anaphylaxis to previous tetanus vaccine administration or neomycin which occur in less than 3 in million case

There is some side effects to vaccine administration like low grade fever ,simple allergy febrile convulsion due to high temperature not due to the vaccine itself and we can control it by antipyretic medication

# Febrile convulsion conflict

- **Wash your hand**
- **Great the examiner**
- **Ask any additional notes**
- **Introduce your self**
- **Confirm identity and relation to the child**
- **Nice to meet you Mr. >>>**
- **How can I help you today**

  My child has seizure why you disharge him home
- **How much do you know about you child medical status?**
- Your child has what is called febrile convulsion which is seizures related to high temperature it is occur in 3 % of children between 6 month to 5 years with peak at 18 month and only 1 % can develop epilepsy
- The cause of fever is upper respiratory tract infection and no serious cause of convulsion like meningitis so in simple cases like your child we discharge home with some instruction to parent when to return back to ER and what is the first aid if convulsion happened at home like:
  - ✓ lie the child down
  - ✓ Don't put anything in the mouth
  - ✓ Call ambulance if convulsion more than 5 minutes or child didn't recover his conscious level
- **Do you understand what I told you**
- **Do you have further question**
- **Thank you**
- **Wash your hand**

## Conflict with mother her daughter take contraceptive pills

- **Wash your hand**
- **Great the examiner**
- **Introduce your self**
- **Confirm identity and relation to the patient**
- **I think you have concern to discuss with me today?**
- **Do you have someone to attend with us our discussion?**
- **Do you mind our sister attend as chaperon?**
- **How can I help you today?**

***My daughter was here today and you prescribe medication for her and she is sick now and vomit I want to know what is this medicine?***

I am sorry I can't disclose my patient information

## Station end>>>>>>>

If the mother know the medication and ask you who give you the right to prescribe this medicine for my daughter

Explain to her the following

- ✓ Why her daughter came to emergency department
- ✓ Explain Frazer criteria
- ✓ Inform here about your advices
- ✓ Tell her that emergency department not the place encourage unprotected sex

# Psychiatry Stations

# Psychiatry assessment

**Introduction**

As usual (hello, my name abdelaal ED registrar may I know your name and age please?>>>>>)

If suicidal attempts ask was it organized or no?

Organized attempts

- Precautions like Closes  the doors, close bank account
- Writing notes or will
- Inform someone

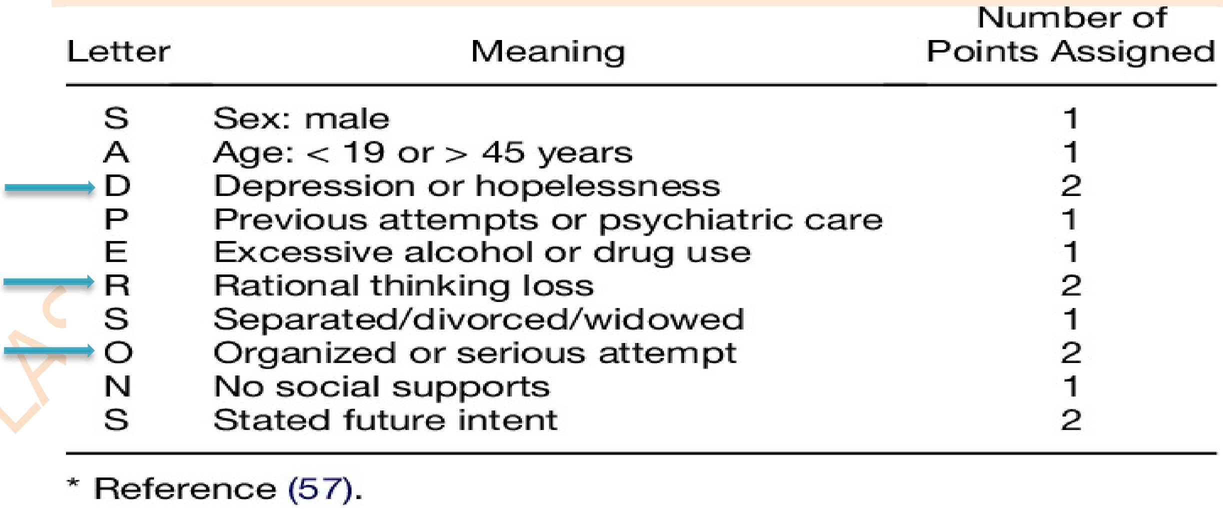
**Mental state examination**

1- Appearance
2- Behavior
3- Speech
4- Mood
    - How do you feel nowadays?
    - Who do you live with?
    - Do you have children? Where now? Are they safe?
    - What do you do for living?
    - How is your sleeping?
    - How is your appetite?
5- Thoughts
    - Do you feel that someone insert thought in your brain?
    - Do you feel that someone take thoughts from your brain
    - Do you feel that someone share your thoughts?
    - Do you see something others with you didn't see?
    - Do you hear voices others with you didn't hear?
    - Delusion>>you will know it from his speech
    - Suicides
        - ✓ Did you try to harm yourself in the past?
        - ✓ Do you try to harm yourself nowadays?
        - ✓ If I discharge you from hospital do you thinking to harm yourself?
6- Cognition
    - ✓ Can you count down from 20-1?
7- Insights
    - ✓ Do you think you are ill and need treatment?

**Brief medical history**

- ✓ Do you have depression before?
- ✓ Do you have chronic disease like DM, hypothyroidism?
- ✓ Do you take regular medication?
- ✓ Do you have any allergy?
- ✓ Do you drink alcohol?
- ✓ By chance do you take illicit drugs?
- ✓ Any mental diseases running in your family?
- ✓ Do you have previous problems with the police?

| | Depression | Mania | Schizophrenia |
|---|---|---|---|
| **appearance** | unkempt | wear bright colors | Normal OR self-neglect |
| **behavior** | Withdrawal<br>Poor eye contact | hyperactive | normal |
| **speech** | Low volume | Talkative<br>Flights of ideas | normal |
| **mood** | Sad<br>apathy<br>poor appetite | euphoric | Normal |
| **thoughts** | Suicidal | Auditory hallucination<br>Delusion<br>Granducity | Auditory hallucination |
| **cognition** | limited | poor | poor |
| **insights** | limited | poor | poor |



| Letter | Meaning | Number of Points Assigned |
|---|---|---|
| S | Sex: male | 1 |
| A | Age: < 19 or > 45 years | 1 |
| D | Depression or hopelessness | 2 |
| P | Previous attempts or psychiatric care | 1 |
| E | Excessive alcohol or drug use | 1 |
| R | Rational thinking loss | 2 |
| S | Separated/divorced/widowed | 1 |
| O | Organized or serious attempt | 2 |
| N | No social supports | 1 |
| S | Stated future intent | 2 |

* Reference (57).

# Mental capacity assessment:

## If patient refuse your treatment plan you must assess mental capacity

- Can they **understand** information relevant to the decision?
- Can they **retain** information relevant to the decision?
- Can they **weigh up** relevant information in order to make the specific decision?
- Can they **communicate** their decision (in any format)?

NB:

- If patient refuse management plan **ask him why?** May be patient has reasons to refuse the management plan like that he take medication before and no benefits so your answer will be I appreciate your concern and I am sorry that you feel that and I will raise your concern to psychiatry team

- If patient refuse for non-reasonable reason assess his mental capacity if he has capacity ask him to think again in management plan for his safety if still refuse ask him is there any one can contact him to convince him if no and still refuse the plan tell him I am afraid and sorry I will call the police and social worker because I have safety issue regarding your life

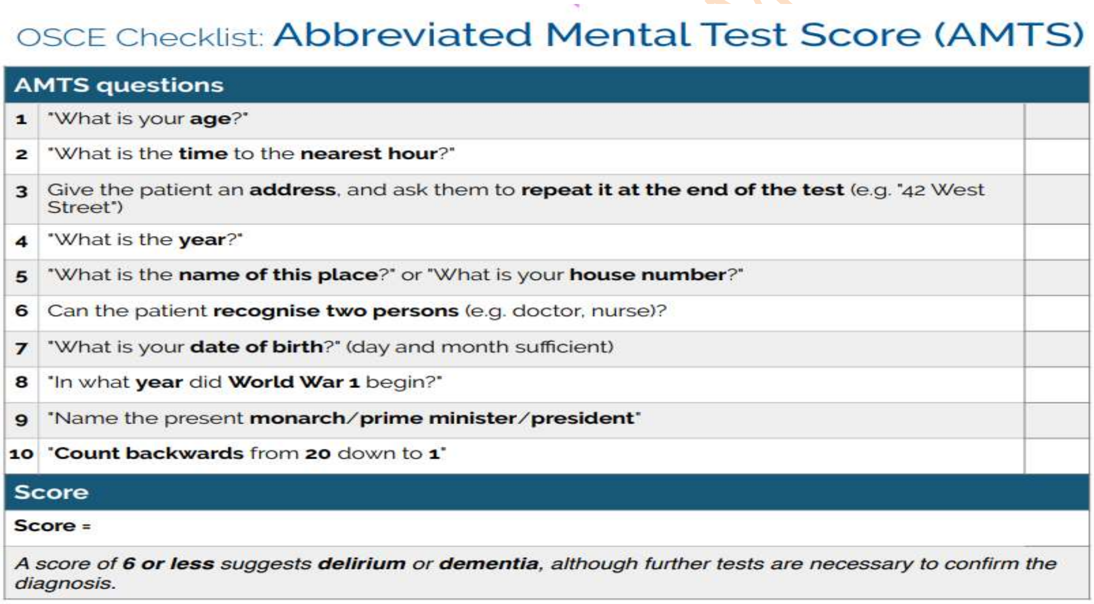
Example:

- ✓ 47 y old male has some depressive features he looked unkempt and poor eye contact his speech low volume he has suicidal thoughts and limited cognition and insights, His SAD person score more than 6 for psychiatry assessment

- ✓ 50 y old female looks happy hyperactive talkative and euphoric with delusion of granducity with poor cognition and insight for psychiatry team assessment

# Mental state examination

- **Wash your hands**
- **Great the examiner**
- **Introduce your self**
- **Confirm identity of the patient**
- **Nice to meet you Mr. >>>>>**
- **Ask about comfortability**
- **Offer chaperon**
- **Today I am asked to assess your mental state is it ok for you?**
- **I will ask you 10 questions**



OSCE Checklist: Abbreviated Mental Test Score (AMTS)

| AMTS questions | | |
|---|---|---|
| 1 | "What is your **age**?" | |
| 2 | "What is the **time** to the **nearest hour**?" | |
| 3 | Give the patient an **address**, and ask them to **repeat it at the end of the test** (e.g. "42 West Street") | |
| 4 | "What is the **year**?" | |
| 5 | "What is the **name of this place**?" or "What is your **house number**?" | |
| 6 | Can the patient **recognise two persons** (e.g. doctor, nurse)? | |
| 7 | "What is your **date of birth**?" (day and month sufficient) | |
| 8 | "In what **year** did **World War 1** begin?" | |
| 9 | "Name the present **monarch/prime minister/president**" | |
| 10 | "**Count backwards** from **20** down to **1**" | |

**Score**

**Score =**

*A score of **6 or less** suggests **delirium** or **dementia**, although further tests are necessary to confirm the diagnosis.*

**A** score of 6 or less **suggests** delirium **or** dementia**, although further tests are necessary to confirm the diagnosis**.

- **Past medical history**
- **Social history**
- **Close** /I believe that you have some features of delirium so our management plan will be I will examine you then run some blood tests to rule out organic causes after that we can consult neurology doctor for proper management
- **Do you have further questions?**
- **Thank patient**
- **Wash your hand**

# Resuscitation

# CRITICAL ILL PATIENT

ALS

## ABCDE APPROACH

- Introduce your self
- Ask about name and level of staff
- Ask about ALS trained
- Assign role for airway and circulation
- Wear PPE
- Activate resuscitation team

If patient arrived

**Airway**:

- Introduce yourself to patient
- Confirm his name and identity
  - ✓ if the patient can talk, their airway is patent and you can move on to the assessment of breathing.
  - ✓ If patient not talk Look for signs of airway compromise (look listen and feel )
  - ✓ Open the mouth and inspect: look for anything obstructing the airway such as secretions or a foreign object.
  - ✓ Open airway by head tilt chin lift or jaw thrust
  - ✓ Open his mouth and look for foreign body
  - ✓ Use airway adjuncts if needed (oropharyngeal airway/nasopharyngeal airway
  - ✓ If patient has angioedema or seizures call anesthesia doctor for intubation early
  - ✓ **Give high flow o2 non rebreather mask**

**Breathing:**

- ✓ **inspection**
  - RR
  - SAO2
  - Chest movement
  - Trachea
  - JAGULR VEINS
  - Any bruises or wound OR deformity
- ✓ **Palpation**:
  - Trachea
  - Chest expansion

**X RAY CHEST**

**ABG**

        - Any tenderness or crepitus
        - Heart beats

- ✓ **Percussion**
    - 6 zones
- ✓ **Auscultation**
    - 6 zones
    - Heart beats

## Circulation

- ✓ BP
- ✓ HR
- ✓ CRT

**CANNULATION**

**BLOOD TESTES**

**ECG**

**GIVE I V FLUID+MEDICATION**

**BLOOD IF NEEDED**

**ANTIBIOTIC IF NEEDED**

## Disability

- ✓ GCS
- ✓ Pupil
- ✓ RBS

**Intubation**

**Do CT brain**

**Naloxone for opioid toxicity**

**Glucose for hypoglycemia**

**DKA protocol**

**GIVE PAIN KILLER**

## EXPOSURE

- ✓ Temperature
- ✓ Skin rash
- ✓ Any injuries or bleeding
- ✓ Cover the patient

## RE ASSESS ABCDE

## HAND OVER

# SEIZURE PROTOCOL

SECURE AIRWAY FROM THE START BLEEB ANATHESIA DOCTOR

0 MINUTES ABCDE /RBS/O2/IV LINE

5 MINUTES LORAZEPAM 4 MG

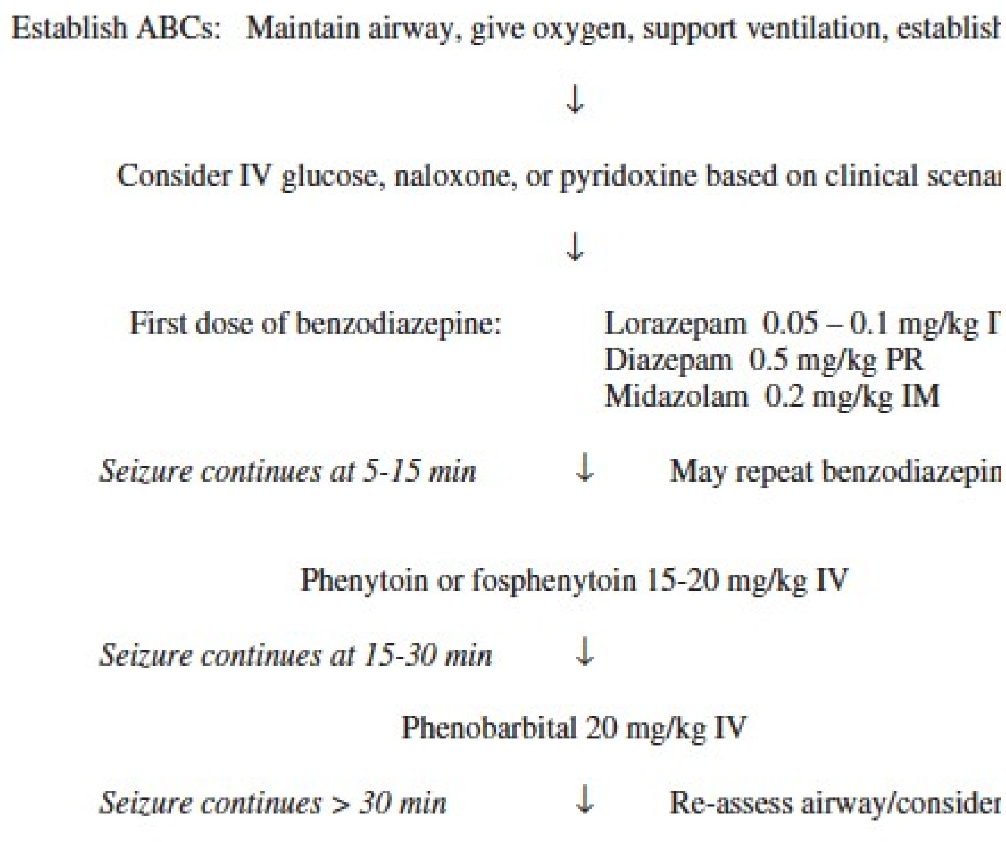
*IF NOT AVAILABE GIVE DIAZEPAM RECTA BUCCAL MIDAZOLAM*

10 MINUTES LORAZEPAM 4 MG IV

20 MINUTES LEVITRICETAM 20-60 MG/KG
PHENYTOIN 17MG/KG (50 MG/MINUTE)
VALPORIC ACID 25-5 MG/KG (6MG/MINUTE)

3RD LINE PHENOBARPITOL 15MG/KG

4TH LINE GENERAL ANATHESIA



Establish ABCs: Maintain airway, give oxygen, support ventilation, establisl

↓

Consider IV glucose, naloxone, or pyridoxine based on clinical scenai

↓

First dose of benzodiazepine: Lorazepam 0.05 – 0.1 mg/kg I
Diazepam 0.5 mg/kg PR
Midazolam 0.2 mg/kg IM

*Seizure continues at 5-15 min* ↓ May repeat benzodiazepin

Phenytoin or fosphenytoin 15-20 mg/kg IV

*Seizure continues at 15-30 min* ↓

Phenobarbital 20 mg/kg IV

*Seizure continues > 30 min* ↓ Re-assess airway/consider

## SNAP PROTOCOL FOR PARACETAMOL TOXICITY

- ❖ 100 MG/KG 200 ML /2H
- ❖ 200 MG/KG 1000ML/10H
- ❖ TAKE BLOOD SAMPLE 2 H BEFOUR FINISHING 2$^{ND}$ DOSE

DISCONTIUE IF:

  - ✓ INR 1.3 OR LESS
  - ✓ ALT NORMAL
  - ✓ PARACETAMOL LEVEL < 10MG/L
  - ✓ PATIENT HAS NO SYMPTOMS
- ❖ IF NO GIVE 3$^{RD}$ DOSE

## OPIOID TOXICITY

- ✓ You will identify it at breathing as respiratory rate very low give assisted ventilation by AMBO BAG ,then at D you will find pin point pupil
- ✓ so start naloxone 400 mic iv and repeat till 2 mg then infusion

## TCA toxicity

- ✓ You will identify it at 4 H &4T
- ✓ Give IV fluids for hypotension
- ✓ If not improved give antidote NAHCO3 8.4%
- ✓ If seizure happened give lorazepam 4 mg iv
- ✓ intralipid
- ✓ Insulin 1U/KG+dextrose to improve cardiac contractility

## CA channel blocker toxicity

- ✓ Suspect it if patient presenting by bradycardia
- ✓ You may identify it at 4H &4T
- ✓ Give ca gluconate 30 ml 10 %
- ✓ intralipid
- ✓ Insulin 1U/KG+dextrose to improve cardiac contractility

## BETA BLOCKER TOCICITY

- ✓ Suspect it if patient presenting by bradycardia
- ✓ You may identify it at 4H &4T
- ✓ Give glucagon 5-10 mg IM
- ✓ intralipid
- ✓ Insulin 1U/KG+dextrose to improve cardiac contractility

## Local anesthesia toxicity

- ✓ Intralipid 1.5 ml/kg iv over one minute can repeated 3 times then 0.25 ml/kg maintainene

## Six bundles of sepsis

Take

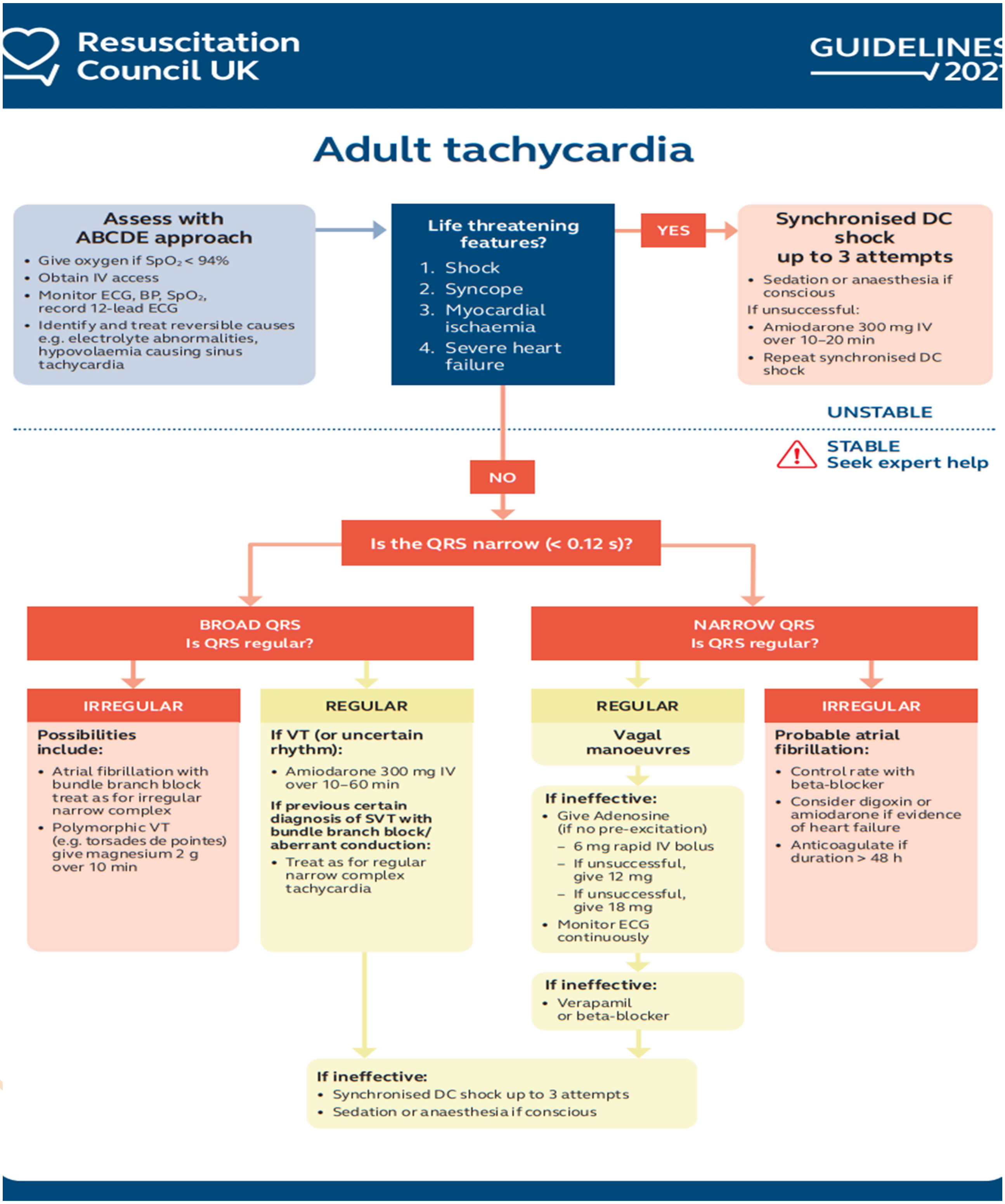
- ✓ blood culture
- ✓ urine culture
- ✓ lactate level

Give

- ✓ fluid
- ✓ antibiotic( tazocin 4.5 gm iv)
- ✓ o2

**PEARLS**:

- ✓ Consider early intubation in seizure and anaphylaxis
- ✓ Consider epinephrine  0.5 mg IM in anaphylaxis
- ✓ Consider seizure algorithm
- ✓ Consider o- blood transfusion in bleeding
- ✓ Consider alert blood bank for massive transfusion
- ✓ Consider 6 bundle in sepsis
- ✓ Consider ceftriaxone 2gm in meningitis
- ✓ Consider naloxone in opioid toxicity
- ✓ Consider assisted ventilation in opioid toxicity
- ✓ Consult toxibase in all toxicology cases
- ✓ Consider antidotes for toxicology (TCA/B BLOCKER,CA CHANNEL BLOCKER,LIDOCAINE TOXICITY )
- ✓ Consider reversible cause of cardiac arrest
- ✓ Consider emergent caesarian section in pregnant women with cardiac arrest after 2 cycle
- ✓ Consider early consultation and referral



Resuscitation Council UK

GUIDELINES 202

# Adult tachycardia

**Assess with ABCDE approach**

- Give oxygen if $SpO_2 < 94\%$
- Obtain IV access
- Monitor ECG, BP, $SpO_2$, record 12-lead ECG
- Identify and treat reversible causes e.g. electrolyte abnormalities, hypovolaemia causing sinus tachycardia

**Life threatening features?**

1. Shock
2. Syncope
3. Myocardial ischaemia
4. Severe heart failure

YES

**Synchronised DC shock up to 3 attempts**

- Sedation or anaesthesia if conscious

If unsuccessful:

- Amiodarone 300 mg IV over 10–20 min
- Repeat synchronised DC shock

UNSTABLE

STABLE
Seek expert help

NO

**Is the QRS narrow (< 0.12 s)?**

**BROAD QRS**
**Is QRS regular?**

**IRREGULAR**

**Possibilities include:**

- Atrial fibrillation with bundle branch block treat as for irregular narrow complex
- Polymorphic VT (e.g. torsades de pointes) give magnesium 2 g over 10 min

**REGULAR**

**If VT (or uncertain rhythm):**

- Amiodarone 300 mg IV over 10–60 min

**If previous certain diagnosis of SVT with bundle branch block/ aberrant conduction:**

- Treat as for regular narrow complex tachycardia

**NARROW QRS**
**Is QRS regular?**

**REGULAR**

**Vagal manoeuvres**

**If ineffective:**

- Give Adenosine (if no pre-excitation)
  - 6 mg rapid IV bolus
  - If unsuccessful, give 12 mg
  - If unsuccessful, give 18 mg
- Monitor ECG continuously

**If ineffective:**

- Verapamil or beta-blocker

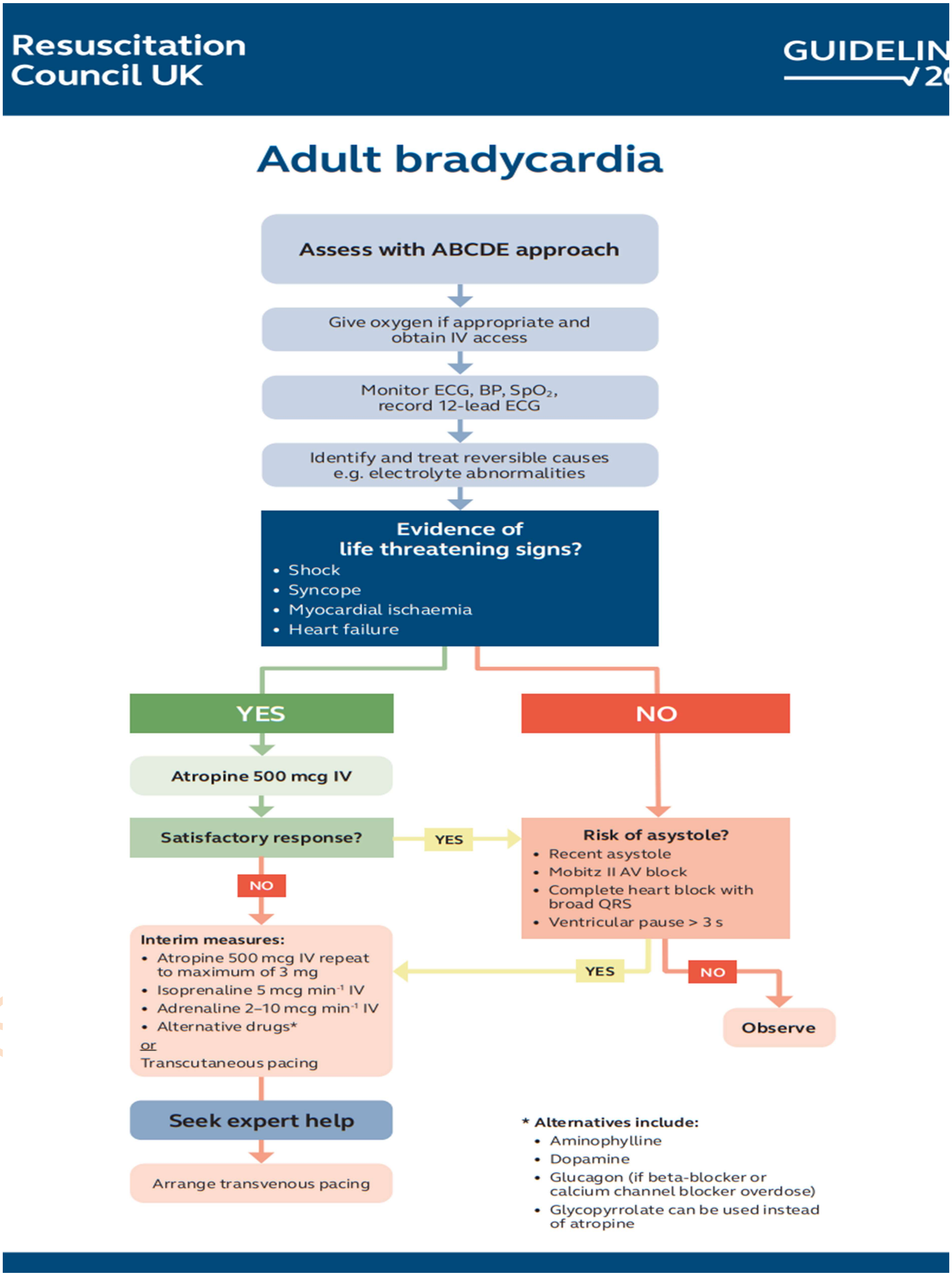
**IRREGULAR**

**Probable atrial fibrillation:**

- Control rate with beta-blocker
- Consider digoxin or amiodarone if evidence of heart failure
- Anticoagulate if duration > 48 h

**If ineffective:**

- Synchronised DC shock up to 3 attempts
- Sedation or anaesthesia if conscious



**Resuscitation Council UK**

GUIDELIN
2

# Adult bradycardia

**Assess with ABCDE approach**

Give oxygen if appropriate and obtain IV access

Monitor ECG, BP, $SpO_2$, record 12-lead ECG

Identify and treat reversible causes e.g. electrolyte abnormalities

**Evidence of life threatening signs?**
- Shock
- Syncope
- Myocardial ischaemia
- Heart failure

**YES**

**Atropine 500 mcg IV**

**Satisfactory response?**

**NO**

**Interim measures:**
- Atropine 500 mcg IV repeat to maximum of 3 mg
- Isoprenaline 5 mcg $\text{min}^{-1}$ IV
- Adrenaline 2–10 mcg $\text{min}^{-1}$ IV
- Alternative drugs*

or

Transcutaneous pacing

**Seek expert help**

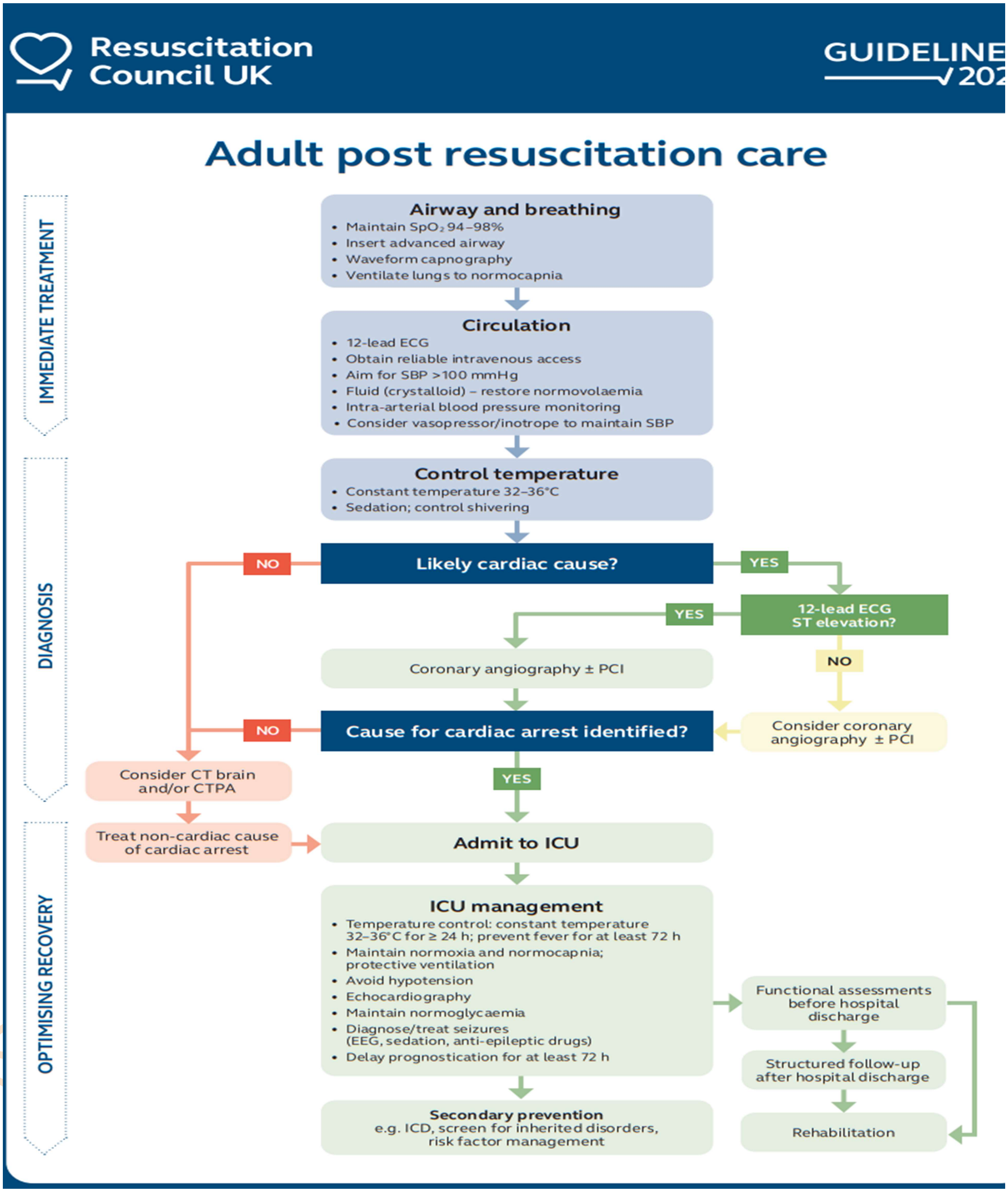
Arrange transvenous pacing

**NO**

**Risk of asystole?**
- Recent asystole
- Mobitz II AV block
- Complete heart block with broad QRS
- Ventricular pause > 3 s

**Observe**

*** Alternatives include:**
- Aminophylline
- Dopamine
- Glucagon (if beta-blocker or calcium channel blocker overdose)
- Glycopyrrolate can be used instead of atropine



Resuscitation Council UK

GUIDELINE 202

# Adult post resuscitation care

IMMEDIATE TREATMENT

**Airway and breathing**
- Maintain $SpO_2$ 94–98%
- Insert advanced airway
- Waveform capnography
- Ventilate lungs to normocapnia

**Circulation**
- 12-lead ECG
- Obtain reliable intravenous access
- Aim for SBP >100 mmHg
- Fluid (crystalloid) – restore normovolaemia
- Intra-arterial blood pressure monitoring
- Consider vasopressor/inotrope to maintain SBP

**Control temperature**
- Constant temperature 32–36°C
- Sedation; control shivering

DIAGNOSIS

**Likely cardiac cause?**

YES → 12-lead ECG ST elevation?

YES → Coronary angiography ± PCI → Cause for cardiac arrest identified?

NO → Consider coronary angiography ± PCI → Cause for cardiac arrest identified?

Likely cardiac cause? NO → Consider CT brain and/or CTPA

**Cause for cardiac arrest identified?**

NO → Consider CT brain and/or CTPA → Treat non-cardiac cause of cardiac arrest → Admit to ICU

YES → Admit to ICU

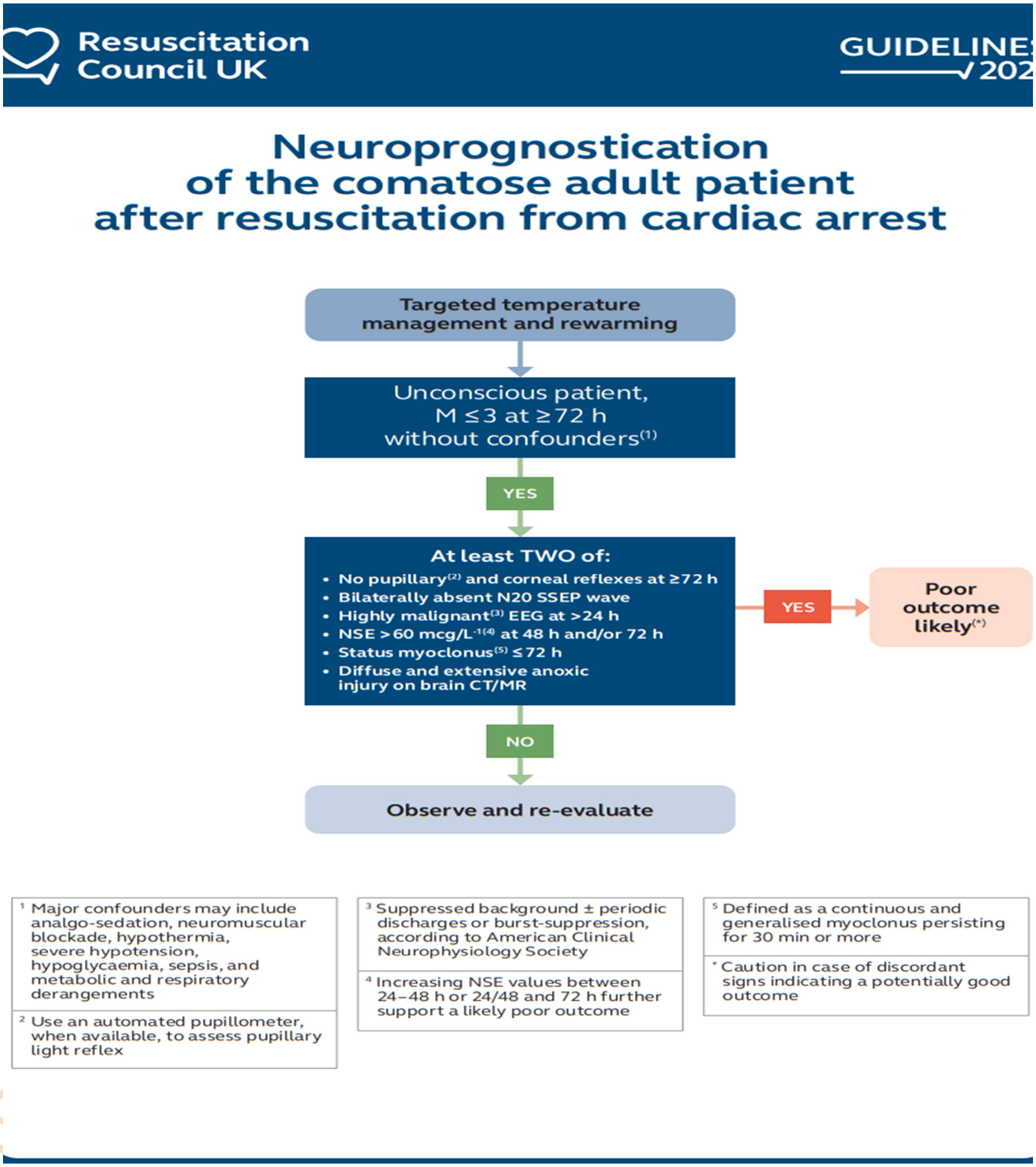
OPTIMISING RECOVERY

**Admit to ICU**

**ICU management**
- Temperature control: constant temperature 32–36°C for ≥ 24 h; prevent fever for at least 72 h
- Maintain normoxia and normocapnia; protective ventilation
- Avoid hypotension
- Echocardiography
- Maintain normoglycaemia
- Diagnose/treat seizures (EEG, sedation, anti-epileptic drugs)
- Delay prognostication for at least 72 h

**Secondary prevention**
e.g. ICD, screen for inherited disorders, risk factor management

Functional assessments before hospital discharge → Structured follow-up after hospital discharge → Rehabilitation



Resuscitation Council UK

GUIDELINE
202

# Neuroprognostication of the comatose adult patient after resuscitation from cardiac arrest

Targeted temperature management and rewarming

Unconscious patient,
M ≤3 at ≥72 h
without confounders(1)

YES

**At least TWO of:**

- No pupillary(2) and corneal reflexes at ≥72 h
- Bilaterally absent N20 SSEP wave
- Highly malignant(3) EEG at >24 h
- NSE >60 mcg/L$^{-1}$(4) at 48 h and/or 72 h
- Status myoclonus(5) ≤72 h
- Diffuse and extensive anoxic injury on brain CT/MR

YES → **Poor outcome likely(*)**

NO

Observe and re-evaluate

[1] Major confounders may include analgo-sedation, neuromuscular blockade, hypothermia, severe hypotension, hypoglycaemia, sepsis, and metabolic and respiratory derangements

[2] Use an automated pupillometer, when available, to assess pupillary light reflex

[3] Suppressed background ± periodic discharges or burst-suppression, according to American Clinical Neurophysiology Society

[4] Increasing NSE values between 24–48 h or 24/48 and 72 h further support a likely poor outcome

[5] Defined as a continuous and generalised myoclonus persisting for 30 min or more

[*] Caution in case of discordant signs indicating a potentially good outcome

# ATLS

## ABCDE APPROACH

- Introduce your self
- Ask about name and level of staff
- Ask about ATLS trained
- Explain the patient status you will receive
- Assign role for airway and circulation
- Activate trauma code
- Wear PPE

If patient arrived

## Airway:

- Introduce yourself to patient
- Confirm his name and identity
- Inline immobilization at same time
- If airway compromised OR no answer LOOK LISTEN AND FEEL if patient breathing open airway by jaw thrust and open mouth for foreign body and suction of secretions (jaw thrust-suction-foreign body removal. Nasopharyngeal or oropharyngeal airway –intubation for secure airway )
- Apply neck collar
- Give high flow o2 and go to breathing
- Ask nurse to expose chest apply cardiac monitor and pulse oximeter

## Breathing (ask-do-ask)

- **Ask about sao2 and RR**
- **DO**

***Inspection***

- ✓ Any wound or bruises
- ✓ Chest movement
- ✓ Trachea
- ✓ Jugular veins

***Palpation***

- ✓ Trachea central or deviated?
- ✓ Any tenderness or crepitus
- ✓ Chest movement
- ✓ Heart beats

**Percussion**

- ✓ 6 zones

**Auscultation**

- ✓ 6 zones
- ✓ Heart beats

- ASK FOR CHEST X RAY CHEST

**Circulation (ask -do -ask )**

- Ask about HR -BP-CRT
- DO
  - ✓ Abdomen inspection-palpation for tenderness or guarding
  - ✓ Pelvic stability long bones deformity
  - ✓ If long bone deformity /check distal pulsation before and after reduction use Thomas splint for reduction
  - ✓ IF PELVIC FRACTURE APPLY PELVIC BINDER
  - ✓ If open fracture don't try reduction
  - ✓ Ask nurse TO introduce 2 wide bore cannula and extract blood sample for FBC/urea and electrolyte/abg/cross matching and give one liter warm saline /give blood o – of hemorrhage and give tranexamic acid 1 gm iv in one minute
- ASK FOR FAST AND PELCIC X RAY

**Disability**

- ✓ RBS
- ✓ PUPIL
- ✓ GCS
- ✓ ANY WEAKNESS IN LIMBS ASK PATIENT TO move 4 limbs
- ✓ GIVE ANALGESIC

**Exposure expose from head to toe**

- ✓ TEMPERTURE
- ✓ ANY IJURIES
- ✓ COVER THE PATIENT

# ATLS MANGEMENT PEARLS

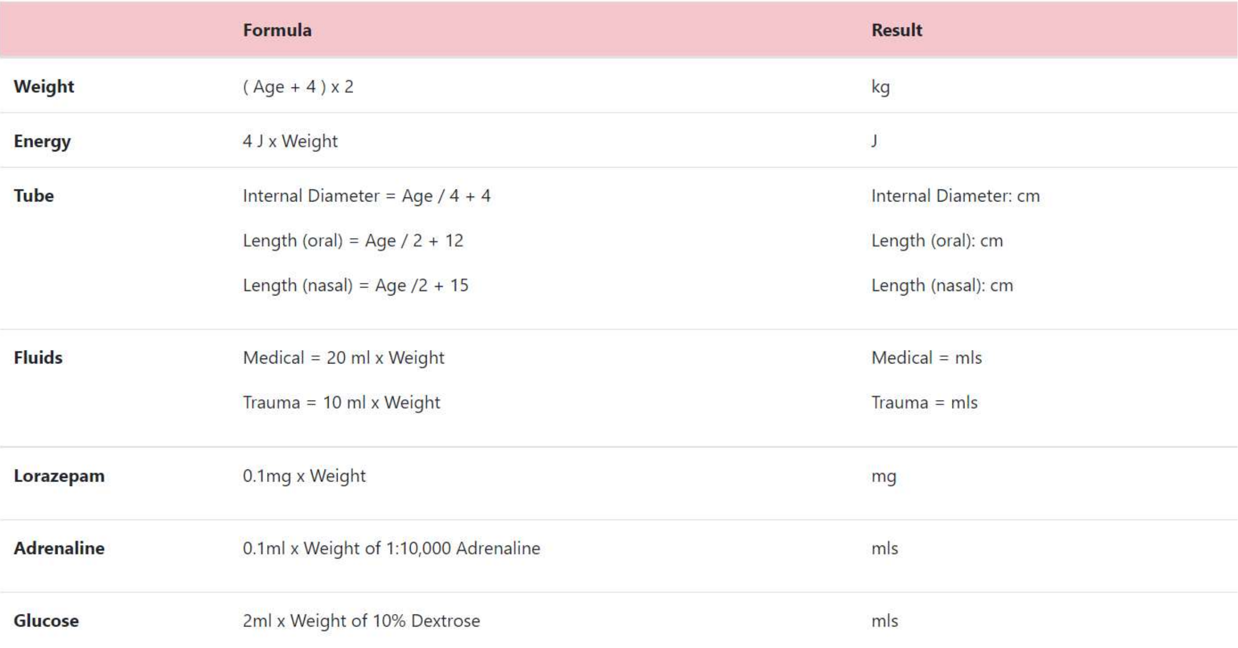
- ✓ Intubation for inhalational burn and GCS less than 8
- ✓ Compression at bleeding site from the start
- ✓ 3 sided tap for open pneumothorax
- ✓ Needle decompression for tension pneumothorax
- ✓ Chest tube for pneumothorax and hemothorax
- ✓ Echarotomy for chest burn
- ✓ Fasciotomy for limbs burn
- ✓ o- blood for bleeding and traumatic shock
- ✓ Activate massive transfusion team
- ✓ Pelvic binder for pelvic fracture
- ✓ Reduction of limb closed fracture
- ✓ Don't attempt to reduce open fracture clean + dressing
- ✓ Fast scan
- ✓ Urgent laparotomy for stab wound
- ✓ Urgent laparotomy for +ve fast of blunt trauma
- ✓ Intracranial tension management by put head at 45 degree release neck collar and tie of endotracheal tube, give hypertonic saline 3%

# APLS

## ABCDE APPROACH

- Introduce your self
- Ask about name and level of staff
- NICE TO MEET YOU BOTH
- Ask about APLS trained
- Explain the patient status you will receive
- Assign role for airway and circulation
- Activate PEDATRIC RESUSCTITION TEAM
- Wear PPE
- I need to calculate **WET FLAG**

CEM OSCE
LA



| | Formula | Result |
|---|---|---|
| **Weight** | ( Age + 4 ) x 2 | kg |
| **Energy** | 4 J x Weight | J |
| **Tube** | Internal Diameter = Age / 4 + 4<br>Length (oral) = Age / 2 + 12<br>Length (nasal) = Age /2 + 15 | Internal Diameter: cm<br>Length (oral): cm<br>Length (nasal): cm |
| **Fluids** | Medical = 20 ml x Weight<br>Trauma = 10 ml x Weight | Medical = mls<br>Trauma = mls |
| **Lorazepam** | 0.1mg x Weight | mg |
| **Adrenaline** | 0.1ml x Weight of 1:10,000 Adrenaline | mls |
| **Glucose** | 2ml x Weight of 10% Dextrose | mls |

- If patient arrived
- I will start ABCDE approach assessment
- Airway
  - ✓ Hello baby (touch his feet)
  - ✓ If no response
  - ✓ Open airway look listen and feel and feel brachial pulse
  - ✓ What is the appearance?

- ✓ Is there any secretion or FB in mouth?
- ✓ Suction
- ✓ Airway adjuncts (OPA/NPA)
- ✓ High flow o2 NRM

❖ **Breathing**

Ask nurse to expose chest and connect cardiac monitor with defibrillation And pulse oximeter

- ✓ Inspection
  RR, SAO2, ANY RASH
- ✓ Auscultation

❖ **Circulation**

- ✓ BP
- ✓ HR
- ✓ CRT
- ✓ INTODUCE 2 WIDE BORE CANNULA
- ✓ EXTRACT BLOOD
- ✓ GIVE WARM SALINE

❖ **DISABILITY**

- ✓ GCS
- ✓ BLOOD SUGAR
- ✓ PUPIL

❖ **EXPOSURE**

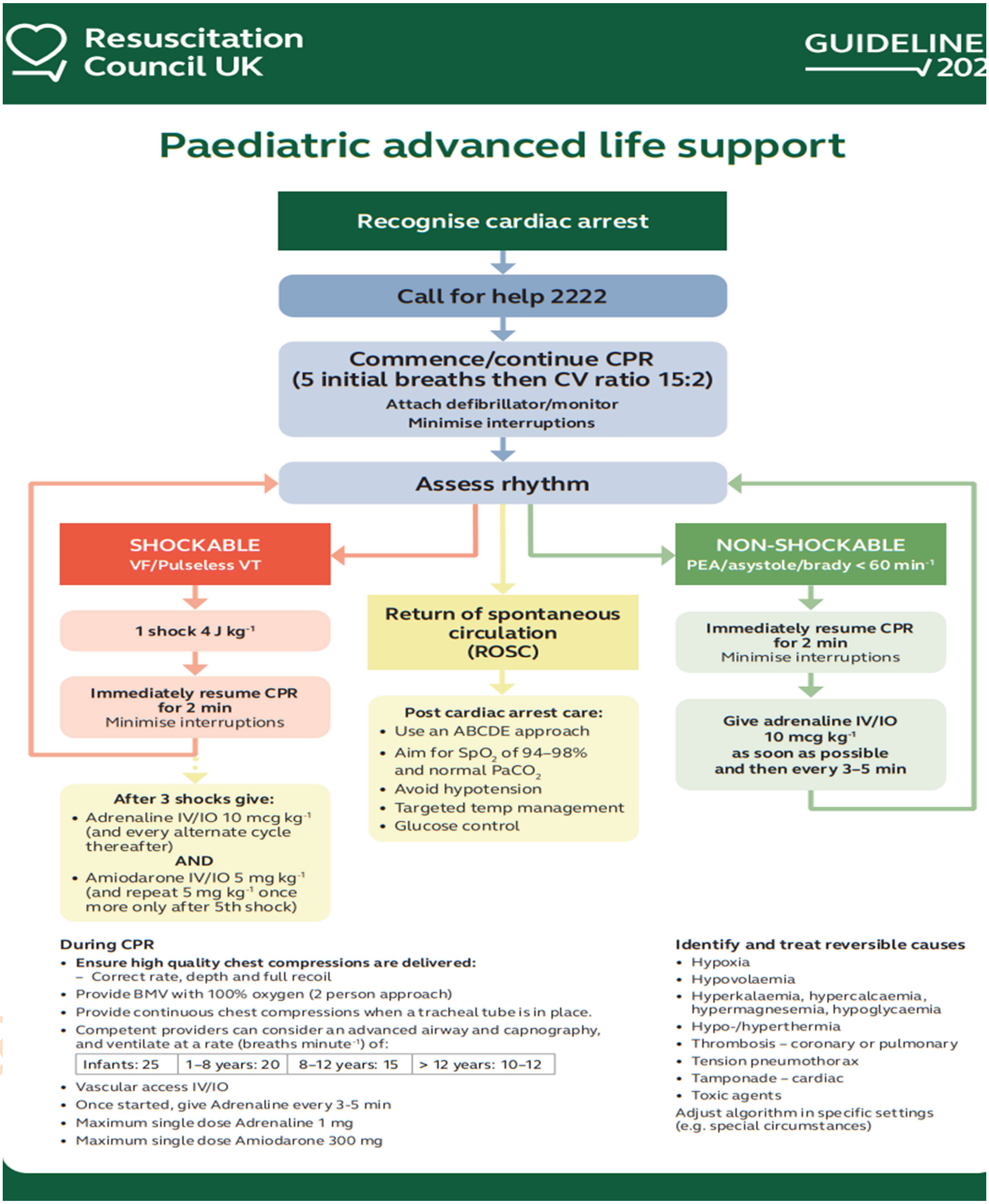
- ✓ TEMPERTURE
- ✓ SKIN RASHES
- ✓ MOTTELED SKIN
- ✓ RE ASSESS ABCDE

❖ **HAND OVER TO PICU**

### IF PATIENT ARRESTE NO RESPONSE

- LOOK LISTEN AND FEEL
- ASK ANY SIGNS OF LIFE
- ACTIVATE PEDIATRIC RESUSCITATION TEAM
- GIVE INSTRUCTION TO YOUR TEAM:
  - ✓ GIVE 5 RESCU BREATHING BEFORE START COMPRESSION
  - ✓ START COMPRESSION AT RATE 100-120 PER MINUTE AT RATE 15:2 WITH ENCIRCLE TECKNIQUE PUSH HARD AND FAST AND ALLOW CHEST RECOIL
- I WILL CHECK THE MONITOR
- IF NON SHOCKABLE GIVE EPINEPHRINE ACCORDING TO WET FLAG

- IF SHOCHABLE GIVE SHOCK  ACCORDING TO WET FLAG
- CONSIDER 4 H AND 4 T
  - HYPOXIA
  - HYPOVOLEMIA
  - HYPOKALEMIA HYPERKALEMIA
  - HYPOTHRMIA
  - TENSION PNEUMOTHORAX
  - CARDIAC TAMPONADE
  - PULMOARY THROMBOSIS
  - CARDIAC THROMBOSIS
  - TOXINS



Resuscitation Council UK

GUIDELINE 202

# Paediatric advanced life support

**Recognise cardiac arrest**

**Call for help 2222**

**Commence/continue CPR**
**(5 initial breaths then CV ratio 15:2)**
Attach defibrillator/monitor
Minimise interruptions

**Assess rhythm**

**SHOCKABLE**
VF/Pulseless VT

1 shock 4 J kg$^{-1}$

**Immediately resume CPR for 2 min**
Minimise interruptions

**After 3 shocks give:**
- Adrenaline IV/IO 10 mcg kg$^{-1}$ (and every alternate cycle thereafter)

**AND**
- Amiodarone IV/IO 5 mg kg$^{-1}$ (and repeat 5 mg kg$^{-1}$ once more only after 5th shock)

**Return of spontaneous circulation (ROSC)**

**Post cardiac arrest care:**
- Use an ABCDE approach
- Aim for $SpO_2$ of 94–98% and normal $PaCO_2$
- Avoid hypotension
- Targeted temp management
- Glucose control

**NON-SHOCKABLE**
PEA/asystole/brady < 60 min$^{-1}$

**Immediately resume CPR for 2 min**
Minimise interruptions

**Give adrenaline IV/IO 10 mcg kg$^{-1}$ as soon as possible and then every 3–5 min**

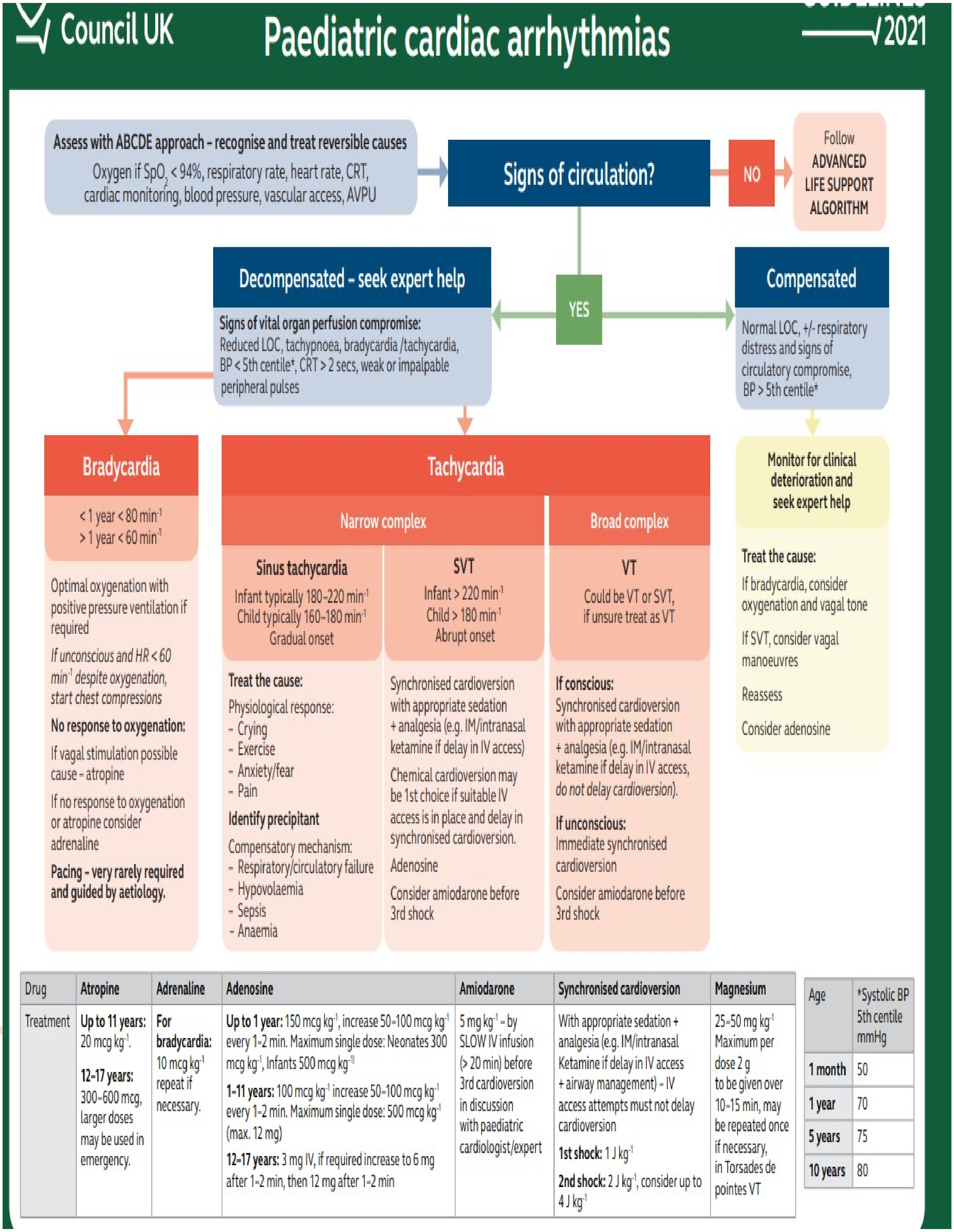
**During CPR**
- **Ensure high quality chest compressions are delivered:**
  - Correct rate, depth and full recoil
- Provide BMV with 100% oxygen (2 person approach)
- Provide continuous chest compressions when a tracheal tube is in place.
- Competent providers can consider an advanced airway and capnography, and ventilate at a rate (breaths minute$^{-1}$) of:

| Infants: 25 | 1–8 years: 20 | 8–12 years: 15 | > 12 years: 10–12 |
|---|---|---|---|

- Vascular access IV/IO
- Once started, give Adrenaline every 3-5 min
- Maximum single dose Adrenaline 1 mg
- Maximum single dose Amiodarone 300 mg

**Identify and treat reversible causes**
- Hypoxia
- Hypovolaemia
- Hyperkalaemia, hypercalcaemia, hypermagnesemia, hypoglycaemia
- Hypo-/hyperthermia
- Thrombosis – coronary or pulmonary
- Tension pneumothorax
- Tamponade – cardiac
- Toxic agents

Adjust algorithm in specific settings (e.g. special circumstances)



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# Paediatric cardiac arrhythmias

2021

**Assess with ABCDE approach – recognise and treat reversible causes**

Oxygen if $SpO_2$ < 94%, respiratory rate, heart rate, CRT, cardiac monitoring, blood pressure, vascular access, AVPU

**Signs of circulation?**

NO

Follow ADVANCED LIFE SUPPORT ALGORITHM

YES

## Decompensated – seek expert help

**Signs of vital organ perfusion compromise:** Reduced LOC, tachypnoea, bradycardia /tachycardia, BP < 5th centile*, CRT > 2 secs, weak or impalpable peripheral pulses

## Compensated

Normal LOC, +/- respiratory distress and signs of circulatory compromise, BP > 5th centile*

## Bradycardia

< 1 year < 80 $min^{-1}$
> 1 year < 60 $min^{-1}$

Optimal oxygenation with positive pressure ventilation if required

*If unconscious and HR < 60 $min^{-1}$ despite oxygenation, start chest compressions*

**No response to oxygenation:**

If vagal stimulation possible cause – atropine

If no response to oxygenation or atropine consider adrenaline

**Pacing – very rarely required and guided by aetiology.**

## Tachycardia

### Narrow complex

#### Sinus tachycardia

Infant typically 180–220 $min^{-1}$
Child typically 160–180 $min^{-1}$
Gradual onset

**Treat the cause:**

Physiological response:
- Crying
- Exercise
- Anxiety/fear
- Pain

**Identify precipitant**

Compensatory mechanism:
- Respiratory/circulatory failure
- Hypovolaemia
- Sepsis
- Anaemia

#### SVT

Infant > 220 $min^{-1}$
Child > 180 $min^{-1}$
Abrupt onset

Synchronised cardioversion with appropriate sedation + analgesia (e.g. IM/intranasal ketamine if delay in IV access)

Chemical cardioversion may be 1st choice if suitable IV access is in place and delay in synchronised cardioversion.

Adenosine

Consider amiodarone before 3rd shock

### Broad complex

#### VT

Could be VT or SVT, if unsure treat as VT

**If conscious:** Synchronised cardioversion with appropriate sedation + analgesia (e.g. IM/intranasal ketamine if delay in IV access, *do not delay cardioversion*).

**If unconscious:** Immediate synchronised cardioversion

Consider amiodarone before 3rd shock

## Monitor for clinical deterioration and seek expert help

**Treat the cause:**

If bradycardia, consider oxygenation and vagal tone

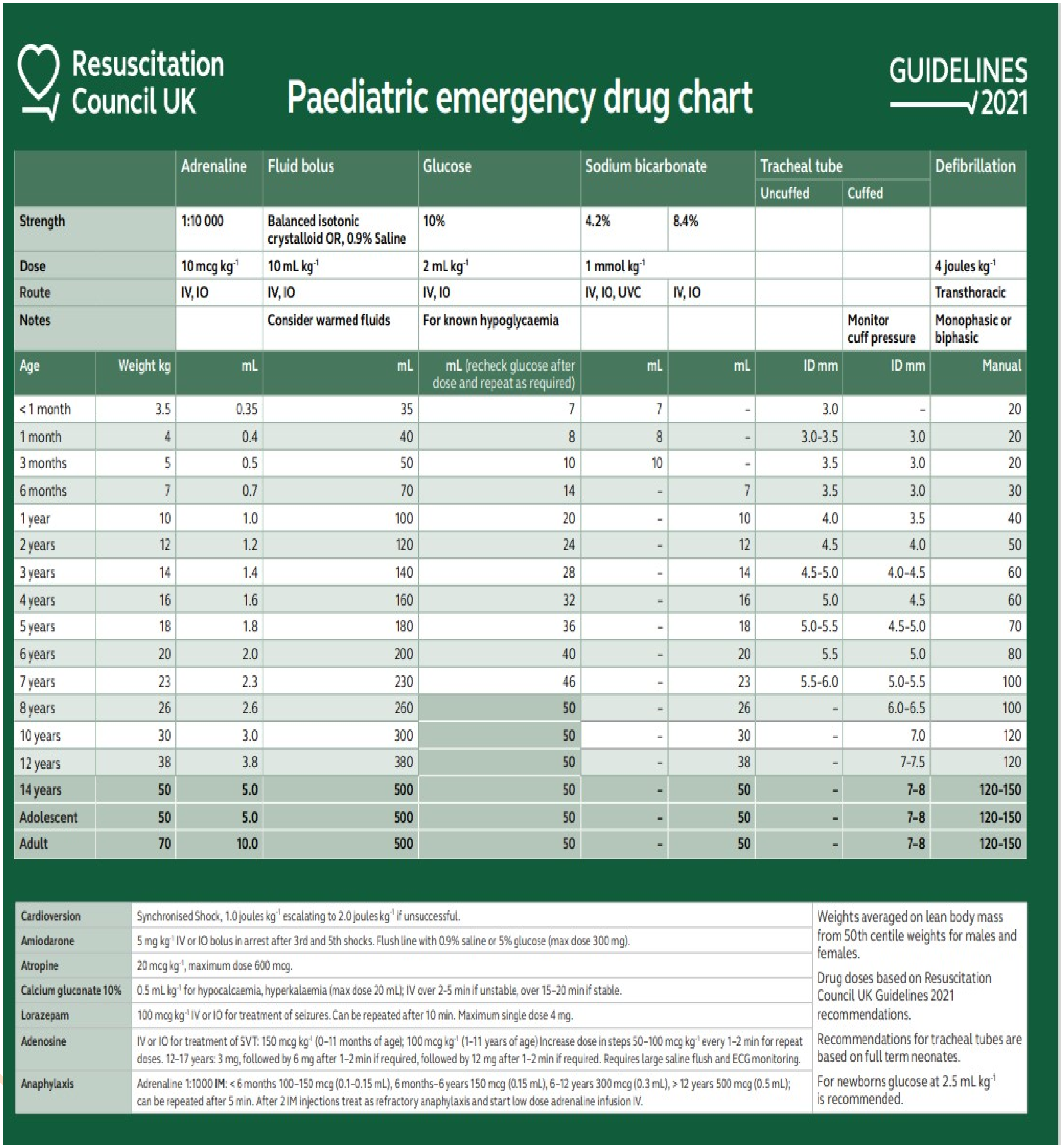
If SVT, consider vagal manoeuvres

Reassess

Consider adenosine

| Drug | Atropine | Adrenaline | Adenosine | Amiodarone | Synchronised cardioversion | Magnesium |
|---|---|---|---|---|---|---|
| Treatment | **Up to 11 years:** 20 mcg $kg^{-1}$.<br>**12–17 years:** 300–600 mcg, larger doses may be used in emergency. | **For bradycardia:** 10 mcg $kg^{-1}$ repeat if necessary. | **Up to 1 year:** 150 mcg $kg^{-1}$, increase 50–100 mcg $kg^{-1}$ every 1–2 min. Maximum single dose: Neonates 300 mcg $kg^{-1}$, Infants 500 mcg $kg^{-1}$)<br>**1–11 years:** 100 mcg $kg^{-1}$ increase 50–100 mcg $kg^{-1}$ every 1–2 min. Maximum single dose: 500 mcg $kg^{-1}$ (max. 12 mg)<br>**12–17 years:** 3 mg IV, if required increase to 6 mg after 1–2 min, then 12 mg after 1–2 min | 5 mg $kg^{-1}$ – by SLOW IV infusion (> 20 min) before 3rd cardioversion in discussion with paediatric cardiologist/expert | With appropriate sedation + analgesia (e.g. IM/intranasal Ketamine if delay in IV access + airway management) – IV access attempts must not delay cardioversion<br>**1st shock:** 1 J $kg^{-1}$<br>**2nd shock:** 2 J $kg^{-1}$, consider up to 4 J $kg^{-1}$ | 25–50 mg $kg^{-1}$ Maximum per dose 2 g to be given over 10–15 min, may be repeated once if necessary, in Torsades de pointes VT |

| Age | *Systolic BP 5th centile mmHg |
|---|---|
| **1 month** | 50 |
| **1 year** | 70 |
| **5 years** | 75 |
| **10 years** | 80 |



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# Paediatric emergency drug chart

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| | | Adrenaline | Fluid bolus | Glucose | Sodium bicarbonate | | Tracheal tube | | Defibrillation |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Uncuffed | Cuffed | |
| **Strength** | | 1:10 000 | Balanced isotonic crystalloid OR, 0.9% Saline | 10% | 4.2% | 8.4% | | | |
| **Dose** | | 10 mcg kg$^{-1}$ | 10 mL kg$^{-1}$ | 2 mL kg$^{-1}$ | 1 mmol kg$^{-1}$ | | | | 4 joules kg$^{-1}$ |
| **Route** | | IV, IO | IV, IO | IV, IO | IV, IO, UVC | IV, IO | | | Transthoracic |
| **Notes** | | | Consider warmed fluids | For known hypoglycaemia | | | | Monitor cuff pressure | Monophasic or biphasic |
| **Age** | **Weight kg** | **mL** | **mL** | **mL** (recheck glucose after dose and repeat as required) | **mL** | **mL** | **ID mm** | **ID mm** | **Manual** |
| < 1 month | 3.5 | 0.35 | 35 | 7 | 7 | - | 3.0 | - | 20 |
| 1 month | 4 | 0.4 | 40 | 8 | 8 | - | 3.0-3.5 | 3.0 | 20 |
| 3 months | 5 | 0.5 | 50 | 10 | 10 | - | 3.5 | 3.0 | 20 |
| 6 months | 7 | 0.7 | 70 | 14 | - | 7 | 3.5 | 3.0 | 30 |
| 1 year | 10 | 1.0 | 100 | 20 | - | 10 | 4.0 | 3.5 | 40 |
| 2 years | 12 | 1.2 | 120 | 24 | - | 12 | 4.5 | 4.0 | 50 |
| 3 years | 14 | 1.4 | 140 | 28 | - | 14 | 4.5-5.0 | 4.0-4.5 | 60 |
| 4 years | 16 | 1.6 | 160 | 32 | - | 16 | 5.0 | 4.5 | 60 |
| 5 years | 18 | 1.8 | 180 | 36 | - | 18 | 5.0-5.5 | 4.5-5.0 | 70 |
| 6 years | 20 | 2.0 | 200 | 40 | - | 20 | 5.5 | 5.0 | 80 |
| 7 years | 23 | 2.3 | 230 | 46 | - | 23 | 5.5-6.0 | 5.0-5.5 | 100 |
| 8 years | 26 | 2.6 | 260 | **50** | - | 26 | - | 6.0-6.5 | 100 |
| 10 years | 30 | 3.0 | 300 | **50** | - | 30 | - | 7.0 | 120 |
| 12 years | 38 | 3.8 | 380 | **50** | - | 38 | - | 7-7.5 | 120 |
| **14 years** | **50** | **5.0** | **500** | **50** | **-** | **50** | **-** | **7-8** | **120-150** |
| **Adolescent** | **50** | **5.0** | **500** | **50** | **-** | **50** | **-** | **7-8** | **120-150** |
| **Adult** | **70** | **10.0** | **500** | **50** | **-** | **50** | **-** | **7-8** | **120-150** |

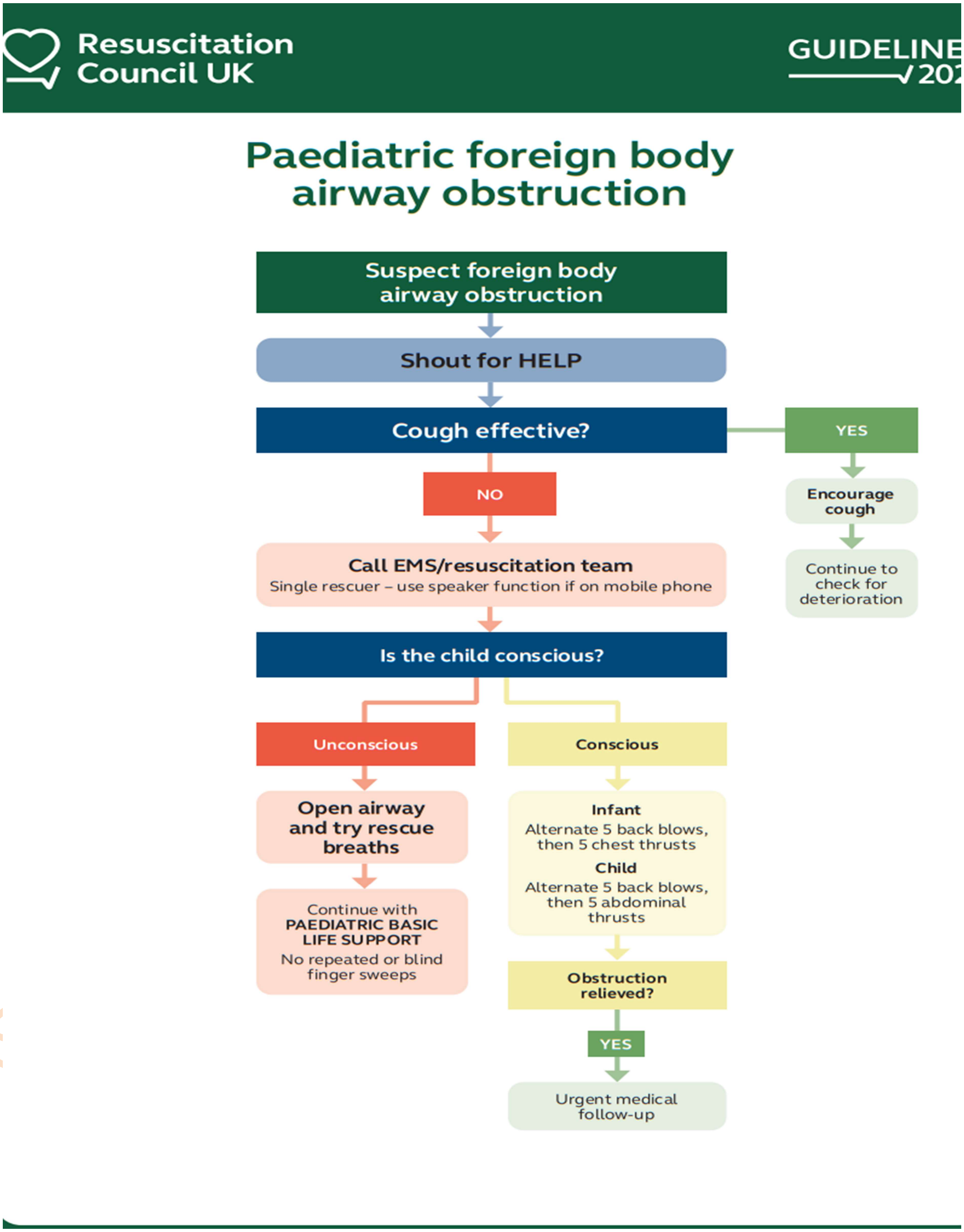
| | |
|---|---|
| **Cardioversion** | Synchronised Shock, 1.0 joules kg$^{-1}$ escalating to 2.0 joules kg$^{-1}$ if unsuccessful. |
| **Amiodarone** | 5 mg kg$^{-1}$ IV or IO bolus in arrest after 3rd and 5th shocks. Flush line with 0.9% saline or 5% glucose (max dose 300 mg). |
| **Atropine** | 20 mcg kg$^{-1}$, maximum dose 600 mcg. |
| **Calcium gluconate 10%** | 0.5 mL kg$^{-1}$ for hypocalcaemia, hyperkalaemia (max dose 20 mL); IV over 2-5 min if unstable, over 15-20 min if stable. |
| **Lorazepam** | 100 mcg kg$^{-1}$ IV or IO for treatment of seizures. Can be repeated after 10 min. Maximum single dose 4 mg. |
| **Adenosine** | IV or IO for treatment of SVT: 150 mcg kg$^{-1}$ (0-11 months of age); 100 mcg kg$^{-1}$ (1-11 years of age) Increase dose in steps 50-100 mcg kg$^{-1}$ every 1-2 min for repeat doses. 12-17 years: 3 mg, followed by 6 mg after 1-2 min if required, followed by 12 mg after 1-2 min if required. Requires large saline flush and ECG monitoring. |
| **Anaphylaxis** | Adrenaline 1:1000 **IM**: < 6 months 100-150 mcg (0.1-0.15 mL), 6 months-6 years 150 mcg (0.15 mL), 6-12 years 300 mcg (0.3 mL), > 12 years 500 mcg (0.5 mL); can be repeated after 5 min. After 2 IM injections treat as refractory anaphylaxis and start low dose adrenaline infusion IV. |

Weights averaged on lean body mass from 50th centile weights for males and females.

Drug doses based on Resuscitation Council UK Guidelines 2021 recommendations.

Recommendations for tracheal tubes are based on full term neonates.

For newborns glucose at 2.5 mL kg$^{-1}$ is recommended.



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202

# Paediatric foreign body airway obstruction

**Suspect foreign body airway obstruction**

**Shout for HELP**

**Cough effective?**

**YES**

**Encourage cough**

Continue to check for deterioration

**NO**

**Call EMS/resuscitation team**
Single rescuer – use speaker function if on mobile phone

**Is the child conscious?**

**Unconscious**

**Open airway and try rescue breaths**

Continue with **PAEDIATRIC BASIC LIFE SUPPORT**
No repeated or blind finger sweeps

**Conscious**

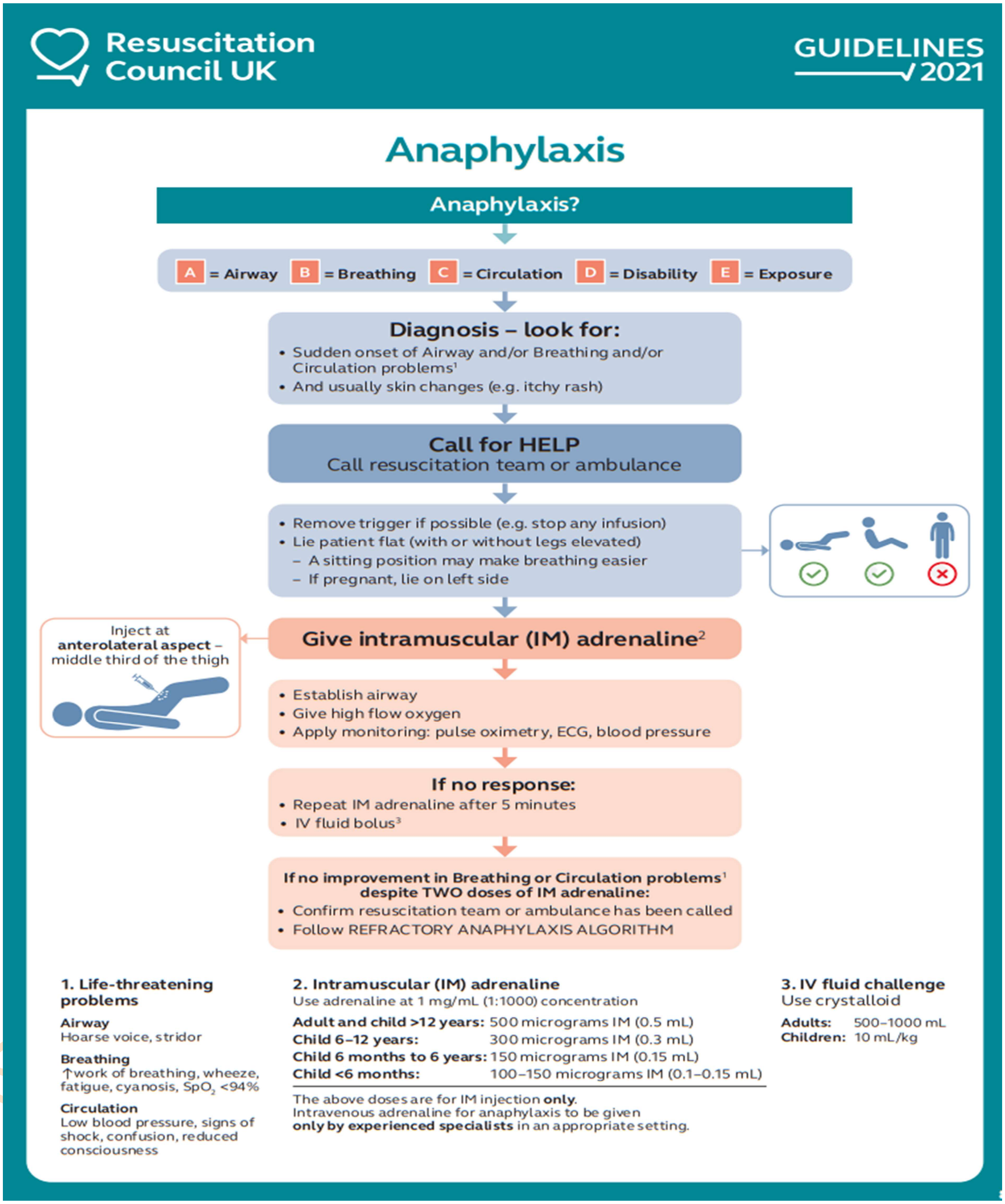
**Infant**
Alternate 5 back blows, then 5 chest thrusts

**Child**
Alternate 5 back blows, then 5 abdominal thrusts

**Obstruction relieved?**

**YES**

Urgent medical follow-up



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# Anaphylaxis

**Anaphylaxis?**

**A** = Airway **B** = Breathing **C** = Circulation **D** = Disability **E** = Exposure

**Diagnosis – look for:**

- Sudden onset of Airway and/or Breathing and/or Circulation problems[1]
- And usually skin changes (e.g. itchy rash)

**Call for HELP**
Call resuscitation team or ambulance

- Remove trigger if possible (e.g. stop any infusion)
- Lie patient flat (with or without legs elevated)
  - A sitting position may make breathing easier
  - If pregnant, lie on left side

✓ ✓ ✗

**Give intramuscular (IM) adrenaline[2]**

Inject at **anterolateral aspect** – middle third of the thigh

- Establish airway
- Give high flow oxygen
- Apply monitoring: pulse oximetry, ECG, blood pressure

**If no response:**

- Repeat IM adrenaline after 5 minutes
- IV fluid bolus[3]

**If no improvement in Breathing or Circulation problems[1] despite TWO doses of IM adrenaline:**

- Confirm resuscitation team or ambulance has been called
- Follow REFRACTORY ANAPHYLAXIS ALGORITHM

**1. Life-threatening problems**

**Airway**
Hoarse voice, stridor

**Breathing**
↑work of breathing, wheeze, fatigue, cyanosis, $SpO_2$ <94%

**Circulation**
Low blood pressure, signs of shock, confusion, reduced consciousness

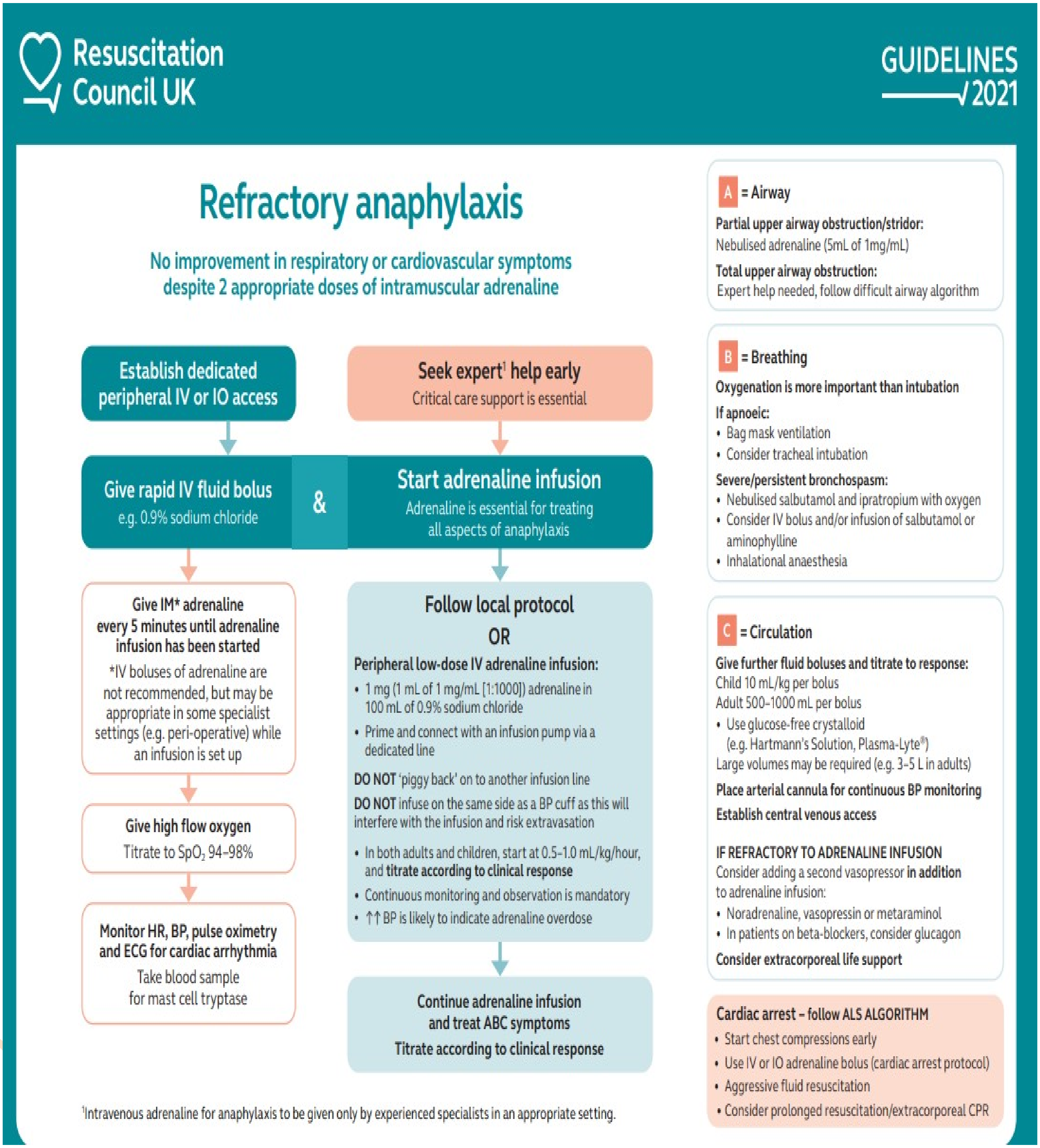
**2. Intramuscular (IM) adrenaline**
Use adrenaline at 1 mg/mL (1:1000) concentration

| | |
|---|---|
| **Adult and child >12 years:** | 500 micrograms IM (0.5 mL) |
| **Child 6–12 years:** | 300 micrograms IM (0.3 mL) |
| **Child 6 months to 6 years:** | 150 micrograms IM (0.15 mL) |
| **Child <6 months:** | 100–150 micrograms IM (0.1–0.15 mL) |

The above doses are for IM injection **only**.
Intravenous adrenaline for anaphylaxis to be given **only by experienced specialists** in an appropriate setting.

**3. IV fluid challenge**
Use crystalloid

| | |
|---|---|
| **Adults:** | 500–1000 mL |
| **Children:** | 10 mL/kg |



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# Refractory anaphylaxis

**No improvement in respiratory or cardiovascular symptoms despite 2 appropriate doses of intramuscular adrenaline**

**Establish dedicated peripheral IV or IO access**

**Seek expert[1] help early**
Critical care support is essential

**Give rapid IV fluid bolus**
e.g. 0.9% sodium chloride

&

**Start adrenaline infusion**
Adrenaline is essential for treating all aspects of anaphylaxis

**Give IM* adrenaline every 5 minutes until adrenaline infusion has been started**
*IV boluses of adrenaline are not recommended, but may be appropriate in some specialist settings (e.g. peri-operative) while an infusion is set up

**Give high flow oxygen**
Titrate to $SpO_2$ 94–98%

**Monitor HR, BP, pulse oximetry and ECG for cardiac arrhythmia**
Take blood sample for mast cell tryptase

**Follow local protocol**

**OR**

**Peripheral low-dose IV adrenaline infusion:**
- 1 mg (1 mL of 1 mg/mL [1:1000]) adrenaline in 100 mL of 0.9% sodium chloride
- Prime and connect with an infusion pump via a dedicated line

**DO NOT** 'piggy back' on to another infusion line

**DO NOT** infuse on the same side as a BP cuff as this will interfere with the infusion and risk extravasation

- In both adults and children, start at 0.5–1.0 mL/kg/hour, and **titrate according to clinical response**
- Continuous monitoring and observation is mandatory
- ↑↑ BP is likely to indicate adrenaline overdose

**Continue adrenaline infusion and treat ABC symptoms**
**Titrate according to clinical response**

[1] Intravenous adrenaline for anaphylaxis to be given only by experienced specialists in an appropriate setting.

**A = Airway**

**Partial upper airway obstruction/stridor:**
Nebulised adrenaline (5mL of 1mg/mL)

**Total upper airway obstruction:**
Expert help needed, follow difficult airway algorithm

**B = Breathing**

**Oxygenation is more important than intubation**

**If apnoeic:**
- Bag mask ventilation
- Consider tracheal intubation

**Severe/persistent bronchospasm:**
- Nebulised salbutamol and ipratropium with oxygen
- Consider IV bolus and/or infusion of salbutamol or aminophylline
- Inhalational anaesthesia

**C = Circulation**

**Give further fluid boluses and titrate to response:**
Child 10 mL/kg per bolus
Adult 500–1000 mL per bolus
- Use glucose-free crystalloid (e.g. Hartmann's Solution, Plasma-Lyte®)

Large volumes may be required (e.g. 3–5 L in adults)

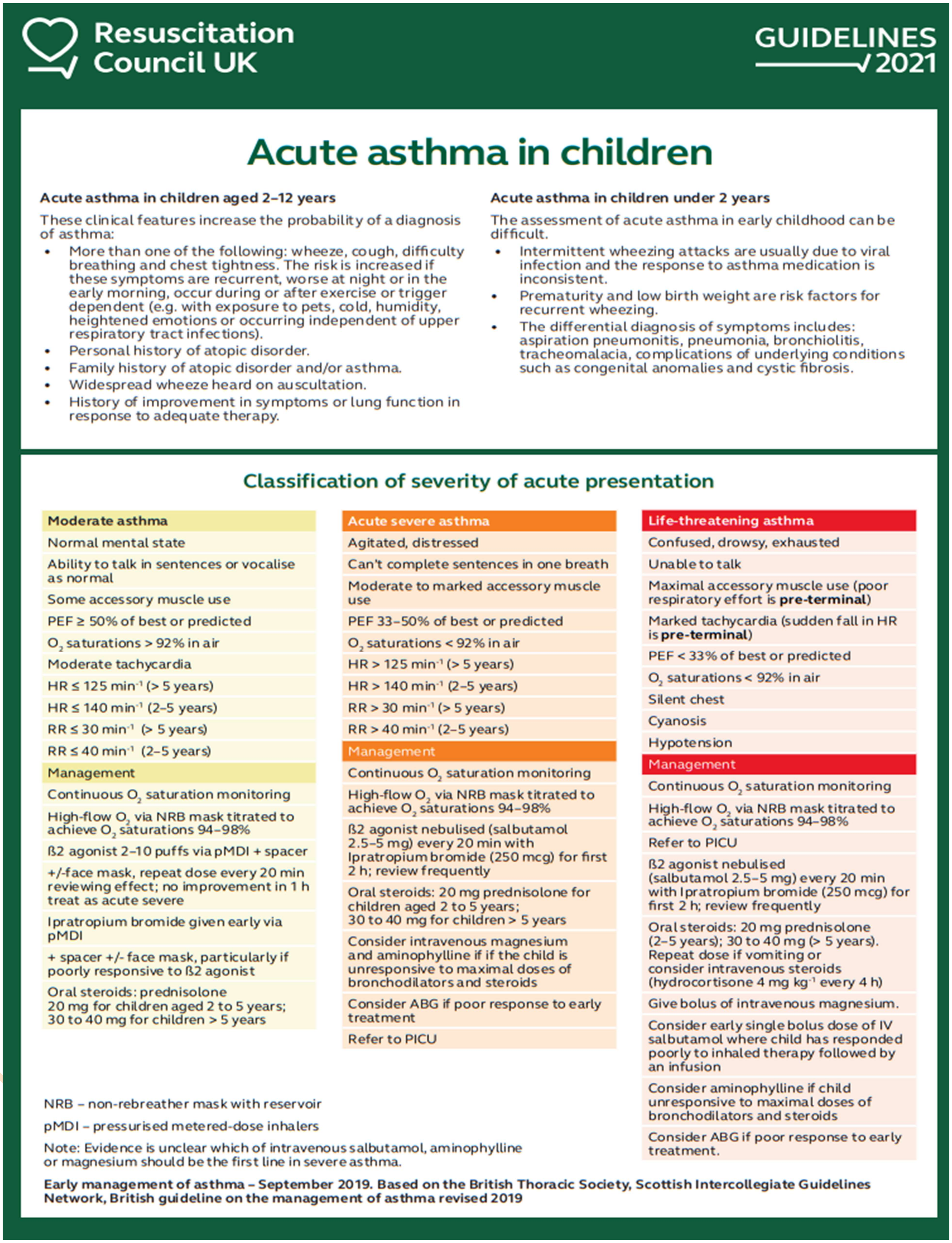
**Place arterial cannula for continuous BP monitoring**

**Establish central venous access**

**IF REFRACTORY TO ADRENALINE INFUSION**
Consider adding a second vasopressor **in addition** to adrenaline infusion:
- Noradrenaline, vasopressin or metaraminol
- In patients on beta-blockers, consider glucagon

**Consider extracorporeal life support**

**Cardiac arrest – follow ALS ALGORITHM**
- Start chest compressions early
- Use IV or IO adrenaline bolus (cardiac arrest protocol)
- Aggressive fluid resuscitation
- Consider prolonged resuscitation/extracorporeal CPR



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# Acute asthma in children

### Acute asthma in children aged 2–12 years

These clinical features increase the probability of a diagnosis of asthma:

- More than one of the following: wheeze, cough, difficulty breathing and chest tightness. The risk is increased if these symptoms are recurrent, worse at night or in the early morning, occur during or after exercise or trigger dependent (e.g. with exposure to pets, cold, humidity, heightened emotions or occurring independent of upper respiratory tract infections).
- Personal history of atopic disorder.
- Family history of atopic disorder and/or asthma.
- Widespread wheeze heard on auscultation.
- History of improvement in symptoms or lung function in response to adequate therapy.

### Acute asthma in children under 2 years

The assessment of acute asthma in early childhood can be difficult.

- Intermittent wheezing attacks are usually due to viral infection and the response to asthma medication is inconsistent.
- Prematurity and low birth weight are risk factors for recurrent wheezing.
- The differential diagnosis of symptoms includes: aspiration pneumonitis, pneumonia, bronchiolitis, tracheomalacia, complications of underlying conditions such as congenital anomalies and cystic fibrosis.

## Classification of severity of acute presentation

| Moderate asthma |
|---|
| Normal mental state |
| Ability to talk in sentences or vocalise as normal |
| Some accessory muscle use |
| PEF ≥ 50% of best or predicted |
| $O_2$ saturations > 92% in air |
| Moderate tachycardia |
| HR ≤ 125 $\text{min}^{-1}$ (> 5 years) |
| HR ≤ 140 $\text{min}^{-1}$ (2–5 years) |
| RR ≤ 30 $\text{min}^{-1}$ (> 5 years) |
| RR ≤ 40 $\text{min}^{-1}$ (2–5 years) |
| **Management** |
| Continuous $O_2$ saturation monitoring |
| High-flow $O_2$ via NRB mask titrated to achieve $O_2$ saturations 94–98% |
| ß2 agonist 2–10 puffs via pMDI + spacer |
| +/-face mask, repeat dose every 20 min reviewing effect; no improvement in 1 h treat as acute severe |
| Ipratropium bromide given early via pMDI |
| + spacer +/- face mask, particularly if poorly responsive to ß2 agonist |
| Oral steroids: prednisolone 20 mg for children aged 2 to 5 years; 30 to 40 mg for children > 5 years |

| Acute severe asthma |
|---|
| Agitated, distressed |
| Can't complete sentences in one breath |
| Moderate to marked accessory muscle use |
| PEF 33–50% of best or predicted |
| $O_2$ saturations < 92% in air |
| HR > 125 $\text{min}^{-1}$ (> 5 years) |
| HR > 140 $\text{min}^{-1}$ (2–5 years) |
| RR > 30 $\text{min}^{-1}$ (> 5 years) |
| RR > 40 $\text{min}^{-1}$ (2–5 years) |
| **Management** |
| Continuous $O_2$ saturation monitoring |
| High-flow $O_2$ via NRB mask titrated to achieve $O_2$ saturations 94–98% |
| ß2 agonist nebulised (salbutamol 2.5–5 mg) every 20 min with Ipratropium bromide (250 mcg) for first 2 h; review frequently |
| Oral steroids: 20 mg prednisolone for children aged 2 to 5 years; 30 to 40 mg for children > 5 years |
| Consider intravenous magnesium and aminophylline if if the child is unresponsive to maximal doses of bronchodilators and steroids |
| Consider ABG if poor response to early treatment |
| Refer to PICU |

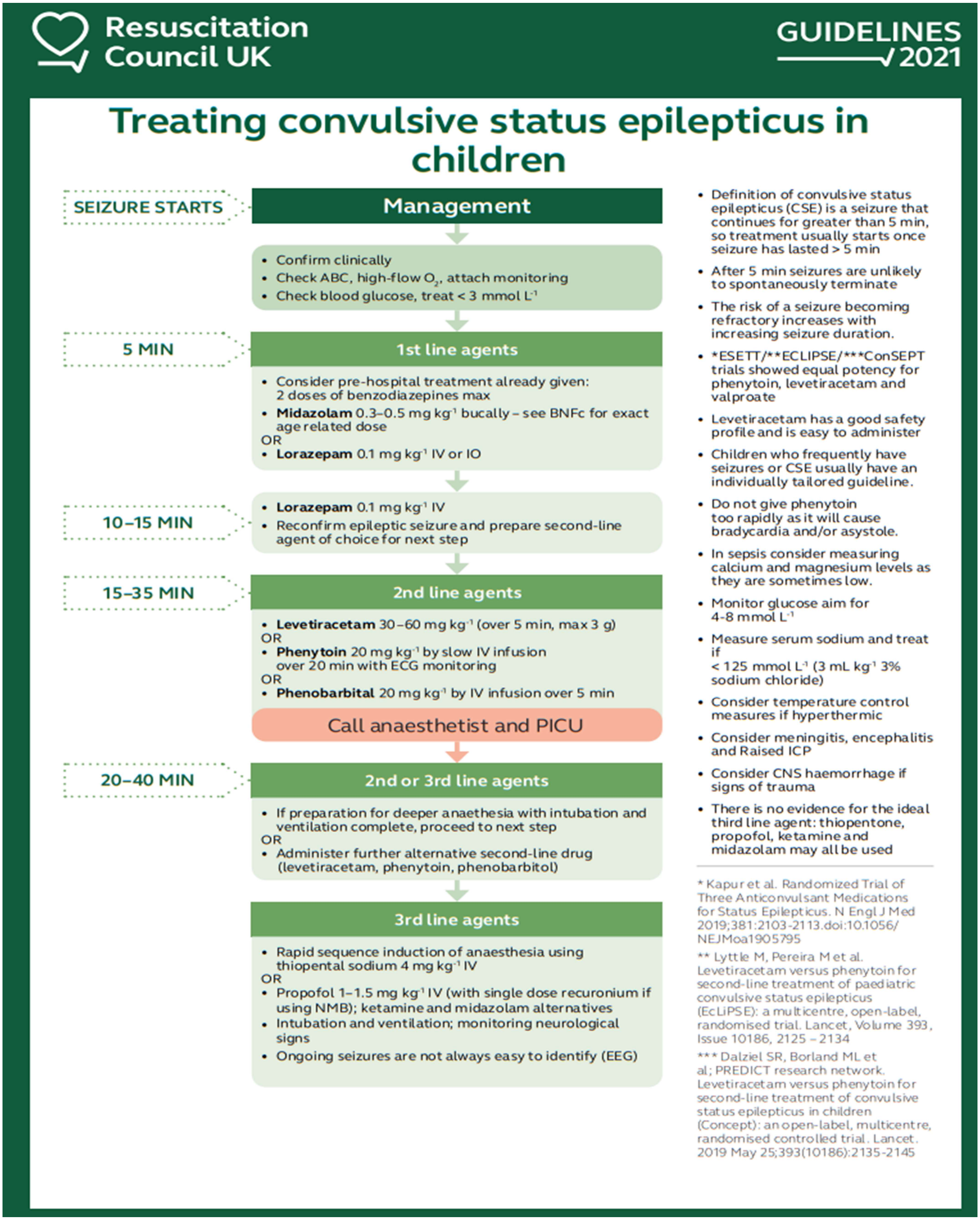
| Life-threatening asthma |
|---|
| Confused, drowsy, exhausted |
| Unable to talk |
| Maximal accessory muscle use (poor respiratory effort is **pre-terminal**) |
| Marked tachycardia (sudden fall in HR is **pre-terminal**) |
| PEF < 33% of best or predicted |
| $O_2$ saturations < 92% in air |
| Silent chest |
| Cyanosis |
| Hypotension |
| **Management** |
| Continuous $O_2$ saturation monitoring |
| High-flow $O_2$ via NRB mask titrated to achieve $O_2$ saturations 94–98% |
| Refer to PICU |
| ß2 agonist nebulised (salbutamol 2.5–5 mg) every 20 min with Ipratropium bromide (250 mcg) for first 2 h; review frequently |
| Oral steroids: 20 mg prednisolone (2–5 years); 30 to 40 mg (> 5 years). Repeat dose if vomiting or consider intravenous steroids (hydrocortisone 4 mg $\text{kg}^{-1}$ every 4 h) |
| Give bolus of intravenous magnesium. |
| Consider early single bolus dose of IV salbutamol where child has responded poorly to inhaled therapy followed by an infusion |
| Consider aminophylline if child unresponsive to maximal doses of bronchodilators and steroids |
| Consider ABG if poor response to early treatment. |

NRB – non-rebreather mask with reservoir

pMDI – pressurised metered-dose inhalers

Note: Evidence is unclear which of intravenous salbutamol, aminophylline or magnesium should be the first line in severe asthma.

**Early management of asthma – September 2019. Based on the British Thoracic Society, Scottish Intercollegiate Guidelines Network, British guideline on the management of asthma revised 2019**



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# Treating convulsive status epilepticus in children

SEIZURE STARTS

## Management

- Confirm clinically
- Check ABC, high-flow $O_2$, attach monitoring
- Check blood glucose, treat < 3 mmol $L^{-1}$

5 MIN

## 1st line agents

- Consider pre-hospital treatment already given: 2 doses of benzodiazepines max
- **Midazolam** 0.3–0.5 mg $kg^{-1}$ bucally – see BNFc for exact age related dose

OR

- **Lorazepam** 0.1 mg $kg^{-1}$ IV or IO

10–15 MIN

- **Lorazepam** 0.1 mg $kg^{-1}$ IV
- Reconfirm epileptic seizure and prepare second-line agent of choice for next step

15–35 MIN

## 2nd line agents

- **Levetiracetam** 30–60 mg $kg^{-1}$ (over 5 min, max 3 g)

OR

- **Phenytoin** 20 mg $kg^{-1}$ by slow IV infusion over 20 min with ECG monitoring

OR

- **Phenobarbital** 20 mg $kg^{-1}$ by IV infusion over 5 min

Call anaesthetist and PICU

20–40 MIN

## 2nd or 3rd line agents

- If preparation for deeper anaesthesia with intubation and ventilation complete, proceed to next step

OR

- Administer further alternative second-line drug (levetiracetam, phenytoin, phenobarbitol)

## 3rd line agents

- Rapid sequence induction of anaesthesia using thiopental sodium 4 mg $kg^{-1}$ IV

OR

- Propofol 1–1.5 mg $kg^{-1}$ IV (with single dose recuronium if using NMB); ketamine and midazolam alternatives
- Intubation and ventilation; monitoring neurological signs
- Ongoing seizures are not always easy to identify (EEG)

- Definition of convulsive status epilepticus (CSE) is a seizure that continues for greater than 5 min, so treatment usually starts once seizure has lasted > 5 min
- After 5 min seizures are unlikely to spontaneously terminate
- The risk of a seizure becoming refractory increases with increasing seizure duration.
- *ESETT/**ECLIPSE/***ConSEPT trials showed equal potency for phenytoin, levetiracetam and valproate
- Levetiracetam has a good safety profile and is easy to administer
- Children who frequently have seizures or CSE usually have an individually tailored guideline.
- Do not give phenytoin too rapidly as it will cause bradycardia and/or asystole.
- In sepsis consider measuring calcium and magnesium levels as they are sometimes low.
- Monitor glucose aim for 4-8 mmol $L^{-1}$
- Measure serum sodium and treat if < 125 mmol $L^{-1}$ (3 mL $kg^{-1}$ 3% sodium chloride)
- Consider temperature control measures if hyperthermic
- Consider meningitis, encephalitis and Raised ICP
- Consider CNS haemorrhage if signs of trauma
- There is no evidence for the ideal third line agent: thiopentone, propofol, ketamine and midazolam may all be used

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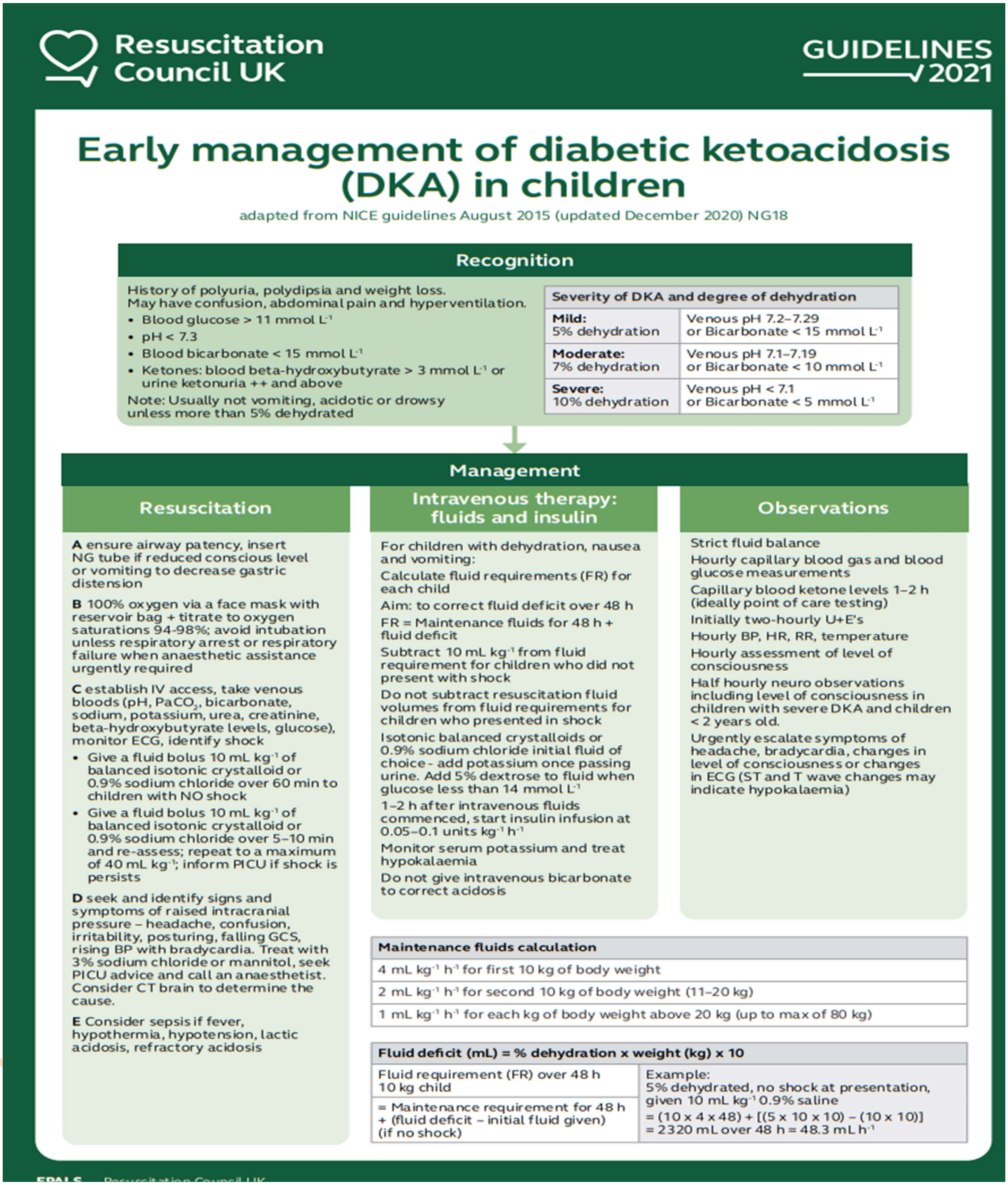
* Kapur et al. Randomized Trial of Three Anticonvulsant Medications for Status Epilepticus. N Engl J Med 2019;381:2103-2113.doi:10.1056/NEJMoa1905795

** Lyttle M, Pereira M et al. Levetiracetam versus phenytoin for second-line treatment of paediatric convulsive status epilepticus (EcLiPSE): a multicentre, open-label, randomised trial. Lancet, Volume 393, Issue 10186, 2125 – 2134

*** Dalziel SR, Borland ML et al; PREDICT research network. Levetiracetam versus phenytoin for second-line treatment of convulsive status epilepticus in children (Concept): an open-label, multicentre, randomised controlled trial. Lancet. 2019 May 25;393(10186):2135-2145



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# Early management of diabetic ketoacidosis (DKA) in children

adapted from NICE guidelines August 2015 (updated December 2020) NG18

## Recognition

History of polyuria, polydipsia and weight loss.
May have confusion, abdominal pain and hyperventilation.

- Blood glucose > 11 mmol $L^{-1}$
- pH < 7.3
- Blood bicarbonate < 15 mmol $L^{-1}$
- Ketones: blood beta-hydroxybutyrate > 3 mmol $L^{-1}$ or urine ketonuria ++ and above

Note: Usually not vomiting, acidotic or drowsy unless more than 5% dehydrated

| **Severity of DKA and degree of dehydration** | |
|---|---|
| **Mild:**<br>5% dehydration | Venous pH 7.2–7.29<br>or Bicarbonate < 15 mmol $L^{-1}$ |
| **Moderate:**<br>7% dehydration | Venous pH 7.1–7.19<br>or Bicarbonate < 10 mmol $L^{-1}$ |
| **Severe:**<br>10% dehydration | Venous pH < 7.1<br>or Bicarbonate < 5 mmol $L^{-1}$ |

## Management

### Resuscitation

**A** ensure airway patency, insert NG tube if reduced conscious level or vomiting to decrease gastric distension

**B** 100% oxygen via a face mask with reservoir bag + titrate to oxygen saturations 94-98%; avoid intubation unless respiratory arrest or respiratory failure when anaesthetic assistance urgently required

**C** establish IV access, take venous bloods (pH, PaCO$_2$, bicarbonate, sodium, potassium, urea, creatinine, beta-hydroxybutyrate levels, glucose), monitor ECG, identify shock

- Give a fluid bolus 10 mL $kg^{-1}$ of balanced isotonic crystalloid or 0.9% sodium chloride over 60 min to children with NO shock
- Give a fluid bolus 10 mL $kg^{-1}$ of balanced isotonic crystalloid or 0.9% sodium chloride over 5–10 min and re-assess; repeat to a maximum of 40 mL $kg^{-1}$; inform PICU if shock is persists

**D** seek and identify signs and symptoms of raised intracranial pressure – headache, confusion, irritability, posturing, falling GCS, rising BP with bradycardia. Treat with 3% sodium chloride or mannitol, seek PICU advice and call an anaesthetist. Consider CT brain to determine the cause.

**E** Consider sepsis if fever, hypothermia, hypotension, lactic acidosis, refractory acidosis

### Intravenous therapy: fluids and insulin

For children with dehydration, nausea and vomiting:

Calculate fluid requirements (FR) for each child

Aim: to correct fluid deficit over 48 h

FR = Maintenance fluids for 48 h + fluid deficit

Subtract 10 mL $kg^{-1}$ from fluid requirement for children who did not present with shock

Do not subtract resuscitation fluid volumes from fluid requirements for children who presented in shock

Isotonic balanced crystalloids or 0.9% sodium chloride initial fluid of choice - add potassium once passing urine. Add 5% dextrose to fluid when glucose less than 14 mmol $L^{-1}$

1–2 h after intravenous fluids commenced, start insulin infusion at 0.05–0.1 units $kg^{-1}$ $h^{-1}$

Monitor serum potassium and treat hypokalaemia

Do not give intravenous bicarbonate to correct acidosis

### Observations

Strict fluid balance

Hourly capillary blood gas and blood glucose measurements

Capillary blood ketone levels 1–2 h (ideally point of care testing)

Initially two-hourly U+E's

Hourly BP, HR, RR, temperature

Hourly assessment of level of consciousness

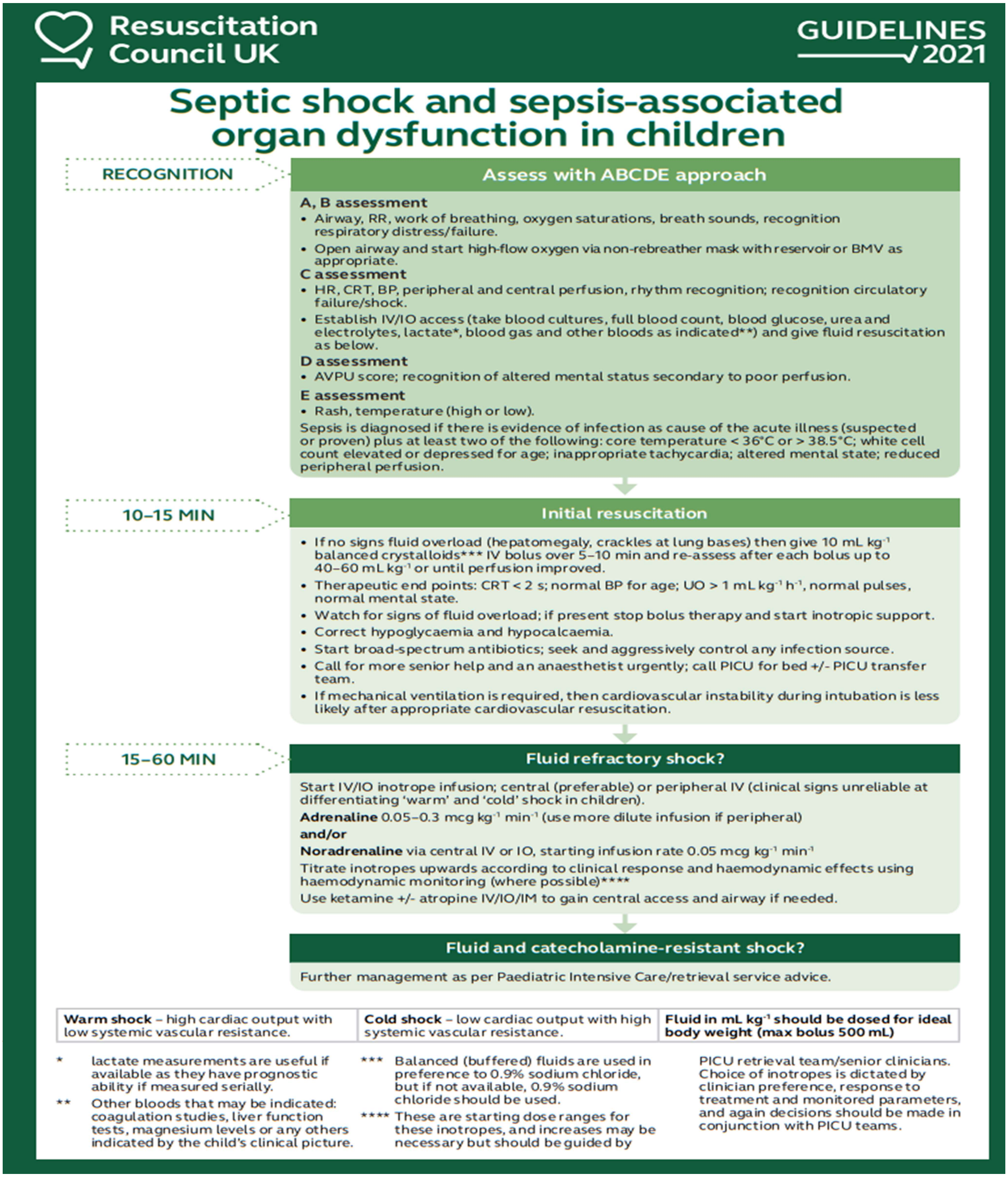
Half hourly neuro observations including level of consciousness in children with severe DKA and children < 2 years old.

Urgently escalate symptoms of headache, bradycardia, changes in level of consciousness or changes in ECG (ST and T wave changes may indicate hypokalaemia)

| **Maintenance fluids calculation** |
|---|
| 4 mL $kg^{-1}$ $h^{-1}$ for first 10 kg of body weight |
| 2 mL $kg^{-1}$ $h^{-1}$ for second 10 kg of body weight (11–20 kg) |
| 1 mL $kg^{-1}$ $h^{-1}$ for each kg of body weight above 20 kg (up to max of 80 kg) |

| **Fluid deficit (mL) = % dehydration x weight (kg) x 10** | |
|---|---|
| Fluid requirement (FR) over 48 h<br>10 kg child | Example:<br>5% dehydrated, no shock at presentation, given 10 mL $kg^{-1}$ 0.9% saline<br>= (10 x 4 x 48) + [(5 x 10 x 10) – (10 x 10)]<br>= 2320 mL over 48 h = 48.3 mL $h^{-1}$ |
| = Maintenance requirement for 48 h + (fluid deficit – initial fluid given) (if no shock) | |

EPALS Resuscitation Council UK



Resuscitation Council UK

GUIDELINES 2021

# Septic shock and sepsis-associated organ dysfunction in children

**RECOGNITION**

## Assess with ABCDE approach

**A, B assessment**

- Airway, RR, work of breathing, oxygen saturations, breath sounds, recognition respiratory distress/failure.
- Open airway and start high-flow oxygen via non-rebreather mask with reservoir or BMV as appropriate.

**C assessment**

- HR, CRT, BP, peripheral and central perfusion, rhythm recognition; recognition circulatory failure/shock.
- Establish IV/IO access (take blood cultures, full blood count, blood glucose, urea and electrolytes, lactate*, blood gas and other bloods as indicated**) and give fluid resuscitation as below.

**D assessment**

- AVPU score; recognition of altered mental status secondary to poor perfusion.

**E assessment**

- Rash, temperature (high or low).

Sepsis is diagnosed if there is evidence of infection as cause of the acute illness (suspected or proven) plus at least two of the following: core temperature < 36°C or > 38.5°C; white cell count elevated or depressed for age; inappropriate tachycardia; altered mental state; reduced peripheral perfusion.

**10–15 MIN**

## Initial resuscitation

- If no signs fluid overload (hepatomegaly, crackles at lung bases) then give 10 mL kg$^{-1}$ balanced crystalloids*** IV bolus over 5–10 min and re-assess after each bolus up to 40–60 mL kg$^{-1}$ or until perfusion improved.
- Therapeutic end points: CRT < 2 s; normal BP for age; UO > 1 mL kg$^{-1}$ h$^{-1}$, normal pulses, normal mental state.
- Watch for signs of fluid overload; if present stop bolus therapy and start inotropic support.
- Correct hypoglycaemia and hypocalcaemia.
- Start broad-spectrum antibiotics; seek and aggressively control any infection source.
- Call for more senior help and an anaesthetist urgently; call PICU for bed +/- PICU transfer team.
- If mechanical ventilation is required, then cardiovascular instability during intubation is less likely after appropriate cardiovascular resuscitation.

**15–60 MIN**

## Fluid refractory shock?

Start IV/IO inotrope infusion; central (preferable) or peripheral IV (clinical signs unreliable at differentiating 'warm' and 'cold' shock in children).

**Adrenaline** 0.05–0.3 mcg kg$^{-1}$ min$^{-1}$ (use more dilute infusion if peripheral)

**and/or**

**Noradrenaline** via central IV or IO, starting infusion rate 0.05 mcg kg$^{-1}$ min$^{-1}$

Titrate inotropes upwards according to clinical response and haemodynamic effects using haemodynamic monitoring (where possible)****

Use ketamine +/- atropine IV/IO/IM to gain central access and airway if needed.

## Fluid and catecholamine-resistant shock?

Further management as per Paediatric Intensive Care/retrieval service advice.

| | | |
|---|---|---|
| **Warm shock** – high cardiac output with low systemic vascular resistance. | **Cold shock** – low cardiac output with high systemic vascular resistance. | **Fluid in mL kg$^{-1}$ should be dosed for ideal body weight (max bolus 500 mL)** |

* lactate measurements are useful if available as they have prognostic ability if measured serially.

** Other bloods that may be indicated: coagulation studies, liver function tests, magnesium levels or any others indicated by the child's clinical picture.

*** Balanced (buffered) fluids are used in preference to 0.9% sodium chloride, but if not available, 0.9% sodium chloride should be used.

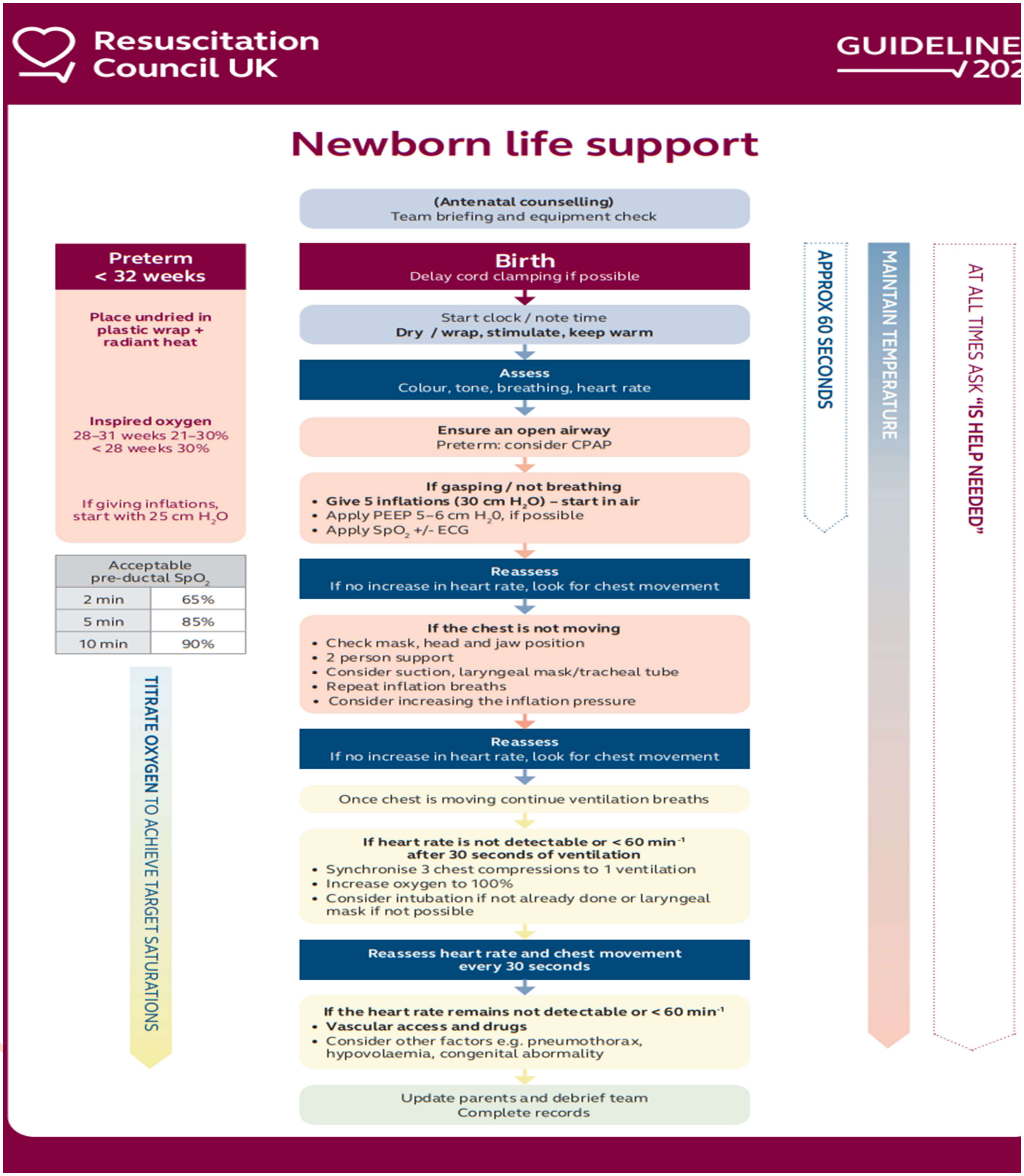
**** These are starting dose ranges for these inotropes, and increases may be necessary but should be guided by PICU retrieval team/senior clinicians. Choice of inotropes is dictated by clinician preference, response to treatment and monitored parameters, and again decisions should be made in conjunction with PICU teams.

# NLS

- ✓ DRY
- ✓ Cover
- ✓ Assess breathing heart rate tone color
- ✓ Open airway give 5 rescue breathing
- ✓ Assess chest rise
- ✓ Put towel behind upper back and give 5 rescue breathing
- ✓ If still no chest rising use two person technique
- ✓ If chest rise assess heart rate if less than 60 continue ventilation for 30 sec
- ✓ If still HR less than 60 start chest compression 3:1 and assess every 30 minute
- ✓ If still use drugs
- ✓ If still consider pneumothorax,Hypovolemia congenital anomalies
- ✓ Update parents

If the HR remains below 60 min$^{-1}$ despite adequate control of the airway, effective ventilation and chest compressions for 30 seconds, then consider:

| DRUG | DOSE | NOTE |
|---|---|---|
| **adrenaline** | 20 MIC/KG | EVERY 3-5 MINUTES IVOR INTRTRACHEAL |
| **glucose** | 2.5 ML/KG D10% | 250MG/KG |
| **Fluid or blood** | 10 ml/kg | |
| **NAHCO3** | 1-2 mmol/kg | 4.2% |



Resuscitation Council UK

GUIDELINE
202

# Newborn life support

(Antenatal counselling)
Team briefing and equipment check

**Birth**
Delay cord clamping if possible

Start clock / note time
**Dry / wrap, stimulate, keep warm**

**Assess**
Colour, tone, breathing, heart rate

**Ensure an open airway**
Preterm: consider CPAP

**If gasping / not breathing**
- **Give 5 inflations (30 cm $H_2O$) – start in air**
- Apply PEEP 5–6 cm $H_2O$, if possible
- Apply $SpO_2$ +/- ECG

**Reassess**
If no increase in heart rate, look for chest movement

**If the chest is not moving**
- Check mask, head and jaw position
- 2 person support
- Consider suction, laryngeal mask/tracheal tube
- Repeat inflation breaths
- Consider increasing the inflation pressure

**Reassess**
If no increase in heart rate, look for chest movement

Once chest is moving continue ventilation breaths

**If heart rate is not detectable or < 60 $min^{-1}$**
**after 30 seconds of ventilation**
- Synchronise 3 chest compressions to 1 ventilation
- Increase oxygen to 100%
- Consider intubation if not already done or laryngeal mask if not possible

**Reassess heart rate and chest movement**
**every 30 seconds**

**If the heart rate remains not detectable or < 60 $min^{-1}$**
- **Vascular access and drugs**
- Consider other factors e.g. pneumothorax, hypovolaemia, congenital abnormality

Update parents and debrief team
Complete records

**Preterm**
**< 32 weeks**

**Place undried in plastic wrap + radiant heat**

**Inspired oxygen**
28–31 weeks 21–30%
< 28 weeks 30%

If giving inflations, start with 25 cm $H_2O$

| Acceptable pre-ductal $SpO_2$ | |
|---|---|
| 2 min | 65% |
| 5 min | 85% |
| 10 min | 90% |

**TITRATE OXYGEN** TO ACHIEVE TARGET SATURATIONS

**APPROX 60 SECONDS**

MAINTAIN TEMPERATURE

AT ALL TIMES ASK **"IS HELP NEEDED"**

# TEACHING

## Stations

LAST
CE

# Procedures

- Indication
- Contraindication
- Complication
- How to avoid complication
- Preparation
    - ✓ Explanation to patient
    - ✓ Consent
    - ✓ Prepare patient
    - ✓ Prepare equipment and medication
- Procedure
- Post procedure management
- Post procedure advise and follow up
- Documentation

# ABG

- ❖ Wash your hand
- ❖ Greet the examiner
- ❖ Introduce your self
- ❖ Confirm identity and level of the physician
- ❖ Nice to meet you dr ……
- ❖ I think you have something to discuss with me today
  - ✓ **Yes I want you to teach me ABG**
- ❖ Really , ABG is very important topic in emergency
- ❖ Ok how much do you know about ABG?
  - ✓ **I have no idea**
- ❖ Ok no problem I will teach you ABG from the start please concentrate with me and feel free to ask me any question at any time ,,,at the end I will give you online websites which will help you more in ABG interpretation
- ❖ Also I will be very happy if see you again for more discussion and practice
- ❖ First indication of ABG
  - ✓ PH and metabolic assessment like in DKA cases and toxicology cases
  - ✓ Oxygenation evaluation like in bronchial asthma and copd patient
  - ✓ Assessment of Lactate level
- ❖ Can you tell me the indication of ABG again?
- ❖ Excellent dr >>>>>>>
- ❖ Then asses PH normal value from 7.35-7.45 If PH below this value it is acidosis if above this value it is alkalosis
- ❖ Can you tell me what the PH in this ABG is?
- ❖ Excellent dr…..
- ❖ Then assess respiratory component which is pco2 the normal value from 4.2-6.4 SO IF PH is low and pco2 high it respiratory acidosis

- Then assess the metabolic component which is HCO3 the normal value from 22-26 so if PH is low and hco3 is low it is metabolic acidosis
- Every increase 10 in pco2 facing increase in hco3 1 in acute condition and 4 in chronic conditions if not equal this equation there is mixed metabolic and respiratory
- Can you tell me what the interpretation of the ABG now is?
- Excellent dr………….
- If you found metabolic acidosis you must calculate anion gap by the equation (NA)-(HCO3+CL) normal value from 12-16 if more than 16 it is high anion gap metabolic acidosis if within normal it is normal anion gap metabolic acidosis
- Causes of metabolic acidosis like DKA ,lactate acidosis ,aspirin toxicity ,co poisoning, cyanide poisoning, alcohol toxicity
- Next time I can teach you how to assess the electrolytes in ABG and how to assess the compensation
- Do you have further question?
- Thank you
- Wash your hand

# ABG sampling

- Wash your hand
- Greet the examiner
- Introduce your self
- Can I know your name and level please?
- Nice to meet you dr ……
- I think you have something to discuss with me today
    - ✓ **Yes I want you to teach me ABG sampling**
- Really , ABG sampling is very important topic in emergency
- Ok how much do you know about ABG sampling?
    - ✓ **I have no idea**
- Ok no problem I will teach you ABG sampling from the start please concentrate with me and feel free to ask me any question at any time ,,,at the end I will give you online websites which will help you more in abg interpretation
- Also I will be very happy if see you again for more discussion and practice together
- First **indication** of ABG
    - ✓ PH & metabolic assessment like in DKA cases
    - ✓ Oxygenation evaluation like in bronchial asthma and COPD patient
    - ✓ Lactate level
- Can you tell me the indication of abg again?
- Excellent dr >>>>>>>
- **Contraindication** like vascular insufficiency ,infection ,burn burger disease and Raynaud's disease
- There is **complication** may happened like bleeding ,hematoma, and infection
- How to **avoid complication** by using complete aseptic technique and US guided
- **Preparation**
    - ✓ Explain the procedure to the patient and take verbal consent
    - ✓ Do Allen test

  - Prepare equipment like syringe with heparin and alcohol swab and dressing
- **Procedure**
  - Put the wrist in full extension
  - Allocate the area of insertion
  - Clean and disinfect the skin
  - Introduce the syringe with 30 degree and puncture the artery
  - Once blood coming the syringe will autofill
  - Apply firm pressure for 10-15 minutes
  - Close the syringe tap and sent sample for analysis
- **Post procedure advise**
  - Keep firm dressing
- **Documentation**
- **Do you have further questions?**
- **Thank you**
- **Wash your hands**

# ECG

- Wash your hand
- Greet the examiner
- Introduce your self
- Confirm identity and level of the physician
- Nice to meet you dr ……
- I think you have something to discuss with me today
  - **Yes I want you to teach me ECG**
- Really , ECG  is very important topic in emergency
- Ok how much do you know about abg?
  - **I have no idea**
- Ok no problem I will teach you ECG from the start please concentrate with me and feel free to ask me any question at any time ,,,at the end I will give you online websites which will help you more in ecg interpretation
- Also I will be very happy if see you again for more discussion and practice together
- Today I will teach you indication of ECG ,rate ,rhythm ,axis and diagnosis of this ECG
- First check patient name, date of birth ,time and date of ECG and Check the calibration of the ECG (usually 25mm/s and 10mm/1mV)
- **indication** of ECG
  - Chest pain
  - Palpitation
  - Syncope
  - Evaluation of critical ill patients
- Can you tell me indication of ECG
- Excellent dr……..
- How to calculate the **rate**  we divide 300 / number of large squares between R peaks OR, if irregular rhythm , we count how many R waves in 10sec and multiply R waves number by 6
- Can you tell me the rate in this ECG?
- Excellent

- $2^{nd}$ step check the **rhythm** regular or irregular simply if the distance between RR wave are equal it is regular rhythm if RR wave not equal so the rhythm is irregular
- Can you tell me the rhythm in this ECG please?
- EXCELLENT
- Now how to assess **axis of the heart in ECG**, look at L1 and AVF if QRS complex is positive deflection in both leads it is normal axis ,if QRS wave is positive deflection in L1 and negative deflection in AVF it is LT axis deviation, if QRS complex wave is negative deflection in L1 and positive deflection in AVF so the axis is right axis
- Can you tell me the axis here?
- Excellent dr>>>>>>
- The next step is to **look at the P waves** and answer the following questions:
    - ✓ Are P waves present?
    - ✓ If so, is each P wave followed by a QRS complex?
    - ✓ Do the P waves look normal? Check duration, direction and shape
    - ✓ If P waves are absent, is there any atrial activity?
- Regarding the diagnosis of this ECG it is >>>>>>
- Do you have further question
- Thank you
- Wash your hand

# PULLED ELBOW

- Wash your hand
- Greet the examiner
- Introduce your self
- Confirm identity and level of the physician
- Nice to meet you dr ……
- I think you have something to discuss with me today
  - ✓ **Yes I have child with pulled elbow and I want you to teach me management of pulled elbow**
- Really , pulled elbow management is very important skill in emergency
- Ok how much do you know about pulled elbow?
  - ✓ **I have no idea**
- Ok no problem I will teach you pulled elbow from the start please concentrate with me and feel free to ask me any question at any time ,,,at the end I will give you online websites which will help you more
- Also I will be very happy if see you again for more discussion and practice together

Let's see the patient

- Hello , my name abdelaal ED registrar and this my colleague dr tony for the purpose of teaching
- Can I know your name and relationship to child?
- Nice to meet you
- Could you tell me what happened?
- Sorry to hear that
- Does your child have pain so I can offer pain killer?
- Actually your child has pulled elbow it is slipped head of radius bone from its annular ligament and I will reduce it to its normal site after that I will keep the child under observation until using his arm if still not use it I will try another attempts of reduction ,,and this dr tony for the purpose of teaching

- Is it ok with you?
- Dr tony ,We have 2 method for reduction of pulled elbow supination flexion method and pronation flexion method but we prefer supination flexion
- Can you tell me methods of reduction please?
- Excellent
- Put your thumb of non-dominant hand over radial head and catch the forearm by another hand and hyper supinate it with flection you will feel click of reduction
- Keep the child at observation room for 30 minutes till he start to use his arm
- If still not use the arm trial another reduction attempts
- If still not using the arm order x ray searching for another causes
- Give instruction to mother that no one pull the child from his arm
- Do you have further question
- Thank you
- Wash your hand

# ARM SLING

- Wash your hand
- Greet the examiner
- Introduce your self
- Confirm identity and level of the physician
- Nice to meet you dr ……
- I think you have something to discuss with me today
- **Yes I want you to teach me arm sling**
- Really , arm sling is very important skill in emergency medicine
- Ok how much do you know about arm sling?
  - ✓ **I have no idea**
- Ok no problem I will teach you arm sling from the start please concentrate with me and feel free to ask me any question at any time ,,,at the end I will give you online websites which will help you more
- Also I will be very happy if see you again for more discussion and practice together

Let's see the patient

- Hello sir, I am dr abdelaal Ed registrar and this my colleague dr >>>>
- Can I know your name and age please?
- Nice to meet you
- This my colleague dr >>>>> for the purpose of teaching is it ok for you?
- Can you tell me what happened?
- I am sorry to hear that
- Today I will apply arm sling for you to elevate your arm and decrease pain while you walking, is it ok for you? at the end I will give you written instruction when to return to hospital
- We have to **types** of arm sling
  - ✓ Triangular and cuff and collar

- **Indication**:
    - ✓ trauma to upper arm
    - ✓ clavicular trauma
    - ✓ ribs fracture

Ask the patient to support the arm in 90 degree then pass the long tail behind the arm and behind the neck of patient attach both end together and tight it

This end wrappe it like this

Then Check capillary refill

Ask patient is it tight sir?

Cuff and collar arm sling applied in standing position, first you measure it ask patient to put his arm in 90 degree and tie it by plastic material

- Can you apply it for me?
- Excellent
- Do you have further question?
- Thank you
- Wash your hand

# CENTRAL LINE

- Wash your hand
- Greet the examiner
- Introduce your self
- Confirm identity and level of the physician
- Nice to meet you dr ……
- I think you have something to discuss with me today
- **Yes I want you to teach me CENTRAL LINE**
- Really , it is very important skill in emergency medicine
- Ok how much do you know about central line?
  - ✓ **I have no idea**
- Ok no problem I will teach you central line from the start please concentrate with me and feel free to ask me any question at any time ,,,at the end I will give you online websites an some brochures which will help you more
- Also I will be very happy if see you again for more discussion and practice together
- First **indication** of central line like emergency iv line access, admiration highly concentrated medication some times for dialysis
- **Contraindication** like infection at site and deep vein thrombosis
- Can you tell me contraindication please?
- Excellent dr >>>>>
- Sometimes some **complication** may happened like bleeding or injury to nearby structure but we can **avoid** that by using US guided us and follow aseptic technique
- For **preparation** we explain to the patient the procedure and take consent and prepare central venous line set
- This is central line sets contain 3 lumen central line, guide wire, dilator, and needle, calculate local anesthesia
- We have 3 sites for insertion IJV, subclavian and femoral
- Today I will teach you femoral central line

- **procedure**
  - ✓ First clean the site
  - ✓ Determine the site of insertion 1cm medial to femoral pulsation
  - ✓ Introduce the needle with aspiration till blood coming with your eyes on monitor then remove syringe and introduce guide wire till 3 marks and keep you hand on guidewire all the time , then remove the needle and introduce the dilator with twisting movement then remove the dilator and introduce the central line catheter through the guidewire make sure that the central lumen opened to remove the guide wire
  - ✓ then aspirate from each lumen to be sure that the catheter in the vein
  - ✓ Fix the central line
  - ✓ Apply dressing
  - ✓ give **instruction** to nurse about central line
- Do you have further question
- Thank you
- Wash your hand

# ARTERIAL LINE

- Wash your hand
- Greet the examiner
- Introduce your self
- Confirm identity and level of the physician
- Nice to meet you dr ……
- I think you have something to discuss with me today
- **Yes I want you to teach me ARTERIAL LINE**
- Really , IT is very important skill in emergency medicine
- Ok how much do you know about ARTERIAL line?
  - ✓ **I have no idea**
- Ok no problem I will teach you ARTERIAL line from the start please concentrate with me and feel free to ask me any question at any time ,,,at the end I will give you online websites and some brochures which will help you more
- Also I will be very happy if see you again for more discussion and practice together
- First **indication** of ARTERIAL line FOR INVASIVE BP MONITIORING ABG SAMPLING and frequent blood sample
- **Contraindication**
  - ✓ Infection ,vascular insufficiency, Full thickness burn and burger disease or Raynaud's disease
- **Complication** bleeding hematoma, thrombosis ,injury to adjacent structure
- How to **avoid** complication like US guided ,allocation of site and do it under aseptic condition
- **Preparation**
  - ✓ explains the procedure and takes consent and do Allen test
  - ✓ Prepare our self
  - ✓ Prepare equipment (needle, arterial line ,dressing, alcohol swab)
  - ✓ Do the procedure Site radial or femoral

  - ✓ After that connect the arterial cannula to arterial set and monitor screen
- ❖ Documentation
- ❖ Do you have further question
- ❖ Thank you
- ❖ Wash your hand

# SEDATION

- Wash your hand
- Greet the examiner
- Introduce your self
- Confirm identity of patient
- Nice to meet you Mr. ……
- Can you tell me what happened to you? Brief history
- Sorry to hear that
- I am asked to do sedation for you for the purpose of shoulder reduction, sedation is depression of your awareness so you can't feel pain during the procedure
- Is it ok for you?
- Ok, There is **contraindication** like allergy and eating less than 6 hour of drinking less than 2 hours procedure suitable to be done under general anesthesia ,,uncontrolled epilepsy, psychosis, respiratory distress
- There is some **complication** of sedation may happened like deep coma or airway compromise but we are trained to avoid these complication and also trained to deal with it if happened
- How to **avoid complication** dose calculation and give medication by small amount
- **Preparation**
  - ✓ Consent
  - ✓ Explanation
  - ✓ Lemon
  - ✓ Airway trolly
  - ✓ Medication
    - propofol .5-1 mg/kg
    - Ketamine 0.5-1 mg/kg
    - Midazolam 0.05-01 mg/kg
    - Fentanyl 0.5-1 mcg /kg

- ✓ Antidotes
  - Naloxone 400 mcg iv
  - Flumazenil 200 mcg iv up to 2 mg

- ❖ **Procedure**

  - ✓ Patient should be managed in resuscitation room with full monitoring 3 leads ecg,capnography,sao2 ,bp monitoring with 2 iv cannula and prepare airway trolley
  - ✓ 3 person should be available
  - ✓ After sedation done and procedure done patient should be observed until able to talk walk drink eat and regain his conscious level

- ❖ **Post procedure advise**
  - ✓ And give the patient post procedure advice:
  - ✓ Patient accompanied by responsible adult
  - ✓ Written instruction when to return to hospital
  - ✓ Advise not sign legal document or driving for 24 hours
- ❖ **documentation**
- ❖ **Do you have further question**
- ❖ **Thank you**
- ❖ **Wash your hand**

# Application pop

- Wash your hand
- Greet the examiner
- Introduce your self
- Confirm patient identity
- Nice to meet you dr ……
- Can you tell me what happened
- Sorry to hear that
- Do you have pain so I can offer pain killer to you
- I see you x ray and unfortunately there is a fracture and I need to do back slap for you
- Is it ok for you?
- Can you move your finger
- Can you close your eyes and say yes when I touch your fingers
- Ok now I will apply cast for you try to keep it dry as much as you can and don't put it in hard surface for 24 hours
- Measure the length/8 layer for upper limb/15-20 layer for lower limb
- Apply cast
- Is it tight sir?
- After applying cast Can you move your fingers
- Can you bend your elbow
- Apply cuff and collar sling
- I will give you written advise when return back to hospital
    - ✓ If cast become wet
    - ✓ Increase pain
    - ✓ Change in color of skin
    - ✓ Body numbness or tingling
- I will give you follow up with fracture clinic for follow up
- Do you have further question
- Thank you
- wash your hand

# C spine clearance

- Wash your hand
- Greet the examiner
- Introduce your self
- Confirm identity and level of the physician
- Nice to meet you dr ……
- I think you have something to discuss with me today
- **Yes I want you to teach me c spine clearance**
- Really , IT is very important skill in emergency medicine
- Ok how much do you know about c spine clearance?
  - ✓ **I have no idea**
- Ok no problem I will teach you c spine clearance from the start please concentrate with me and feel free to ask me any question at any time ,,,at the end I will give you online websites and some brochures for further studies

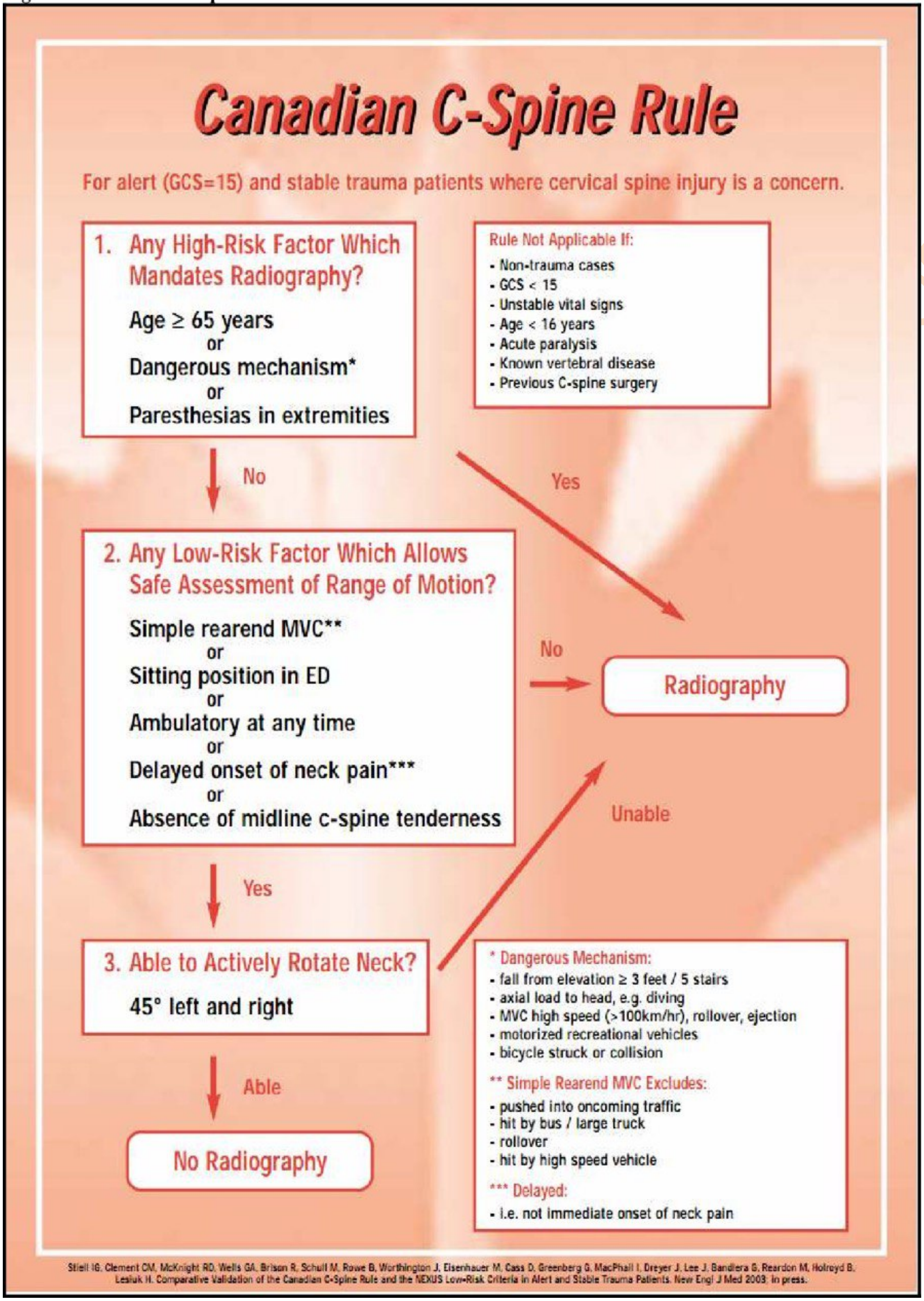
Also I will be very happy if see you again for more discussion

We have to rule in c spine clearance nexus criteria and Canadian c spine rule today I will teach you Canadian c spine rule

Sometimes we can't use it at all as in:

- ✓ Pediatric
- ✓ Focal neurology
- ✓ GCS less than 15
- ✓ Evidence of previous c spine surgery
- First assess for any high risk features if present keep the neck collar
  - ✓ Age > 65
  - ✓ Dangerous mechanism of trauma
  - ✓ Paresthesia in arms
- Second go to low risk factors if one of them present you can assess the neck movement if movement comfortable with no pain no need for imaging and explain to the patient , if not present send patient for radiology imaging

**Figure 4: Canadian C-Spine Rule Pocket Card**



# Canadian C-Spine Rule

For alert (GCS=15) and stable trauma patients where cervical spine injury is a concern.

1. Any High-Risk Factor Which Mandates Radiography?

Age ≥ 65 years
or
Dangerous mechanism*
or
Paresthesias in extremities

Rule Not Applicable If:

- Non-trauma cases
- GCS < 15
- Unstable vital signs
- Age < 16 years
- Acute paralysis
- Known vertebral disease
- Previous C-spine surgery

2. Any Low-Risk Factor Which Allows Safe Assessment of Range of Motion?

Simple rearend MVC**
or
Sitting position in ED
or
Ambulatory at any time
or
Delayed onset of neck pain***
or
Absence of midline c-spine tenderness

Radiography

3. Able to Actively Rotate Neck?

45° left and right

No Radiography

* Dangerous Mechanism:

- fall from elevation ≥ 3 feet / 5 stairs
- axial load to head, e.g. diving
- MVC high speed (>100km/hr), rollover, ejection
- motorized recreational vehicles
- bicycle struck or collision

** Simple Rearend MVC Excludes:

- pushed into oncoming traffic
- hit by bus / large truck
- rollover
- hit by high speed vehicle

*** Delayed:

- i.e. not immediate onset of neck pain

Stiell IG, Clement CM, McKnight RD, Wells GA, Brison R, Schull M, Rowe B, Worthington J, Eisenhauer M, Cass D, Greenberg G, MacPhail I, Dreyer J, Lee J, Bandiera G, Reardon M, Holroyd B, Lesiuk H. Comparative Validation of the Canadian C-Spine Rule and the NEXUS Low-Risk Criteria in Alert and Stable Trauma Patients. New Engl J Med 2003; in press.

# Arthrocentesis

- ❖ Wash your hand
- ❖ Greet the examiner
- ❖ Introduce your self
- ❖ Confirm identity and level of the physician
- ❖ Nice to meet you dr ……
- ❖ I think you have something to discuss with me today
- ❖ **Yes I want you to teach me arthrocentesis**
- ❖ Really , IT is very important skill in emergency medicine
- ❖ Ok how much do you know about arthrocentesis?
    - ✓ **I have no idea**
- ❖ Ok no problem I will teach you arthrocentesis from the start please concentrate with me and feel free to ask me any question at any time ,,,at the end I will give you online websites and some brochures for further studies
- ❖ Also I will be very happy if see you again for more discussion and practice together
- ❖ First **indication** of arthrocentesis diagnostic for aspiration of fluid sample of joint like in gout septic arthritis ,pseudo gout and therapeutic to relive pain and tension inside the joint like hem arthrosis
- ❖ Can you tell me indication of arthrocentesis?
- ❖ Excellent
- ❖ There is **contraindication** to arthrocentesis like infection at site of procedure
    - ✓ Artificial joint
    - ✓ Coagulopathy
    - ✓ There is complication like introduce infection
    - ✓ Injury to adjunct structure
    - ✓ Bleeding
    - ✓ Hematoma
- ❖ Can you tell me contraindication of arthrocentesis?

- How to **avoid complication** but use US guided and complete aseptic technique and Avoid injection local anesthesia inside the joint

- **Preparation**
  - ✓ Explain the procedure to patient
  - ✓ Take consent
  - ✓ Full sterilization of the field
  - ✓ Equipment
    - Local anesthesia
    - Us
    - 20 gauge cannula
    - container
    - dressing
- **procedure** For knee joint we have 5 approaches
  - ✓ medial and lateral supra patellar
  - ✓ para patellar
  - ✓ infra patellar
- Can you tell me types of arthrocentesis approach of knee?
- Excellent dr <<<<<
- **post procedure management**
  - ✓ apply dressing
  - ✓ send fluid to lab for analysis
  - ✓ inform the patient the you will inform him about the lab result
- **post procedure advise**
  - ✓ verbal and written consent when come back to hospital
  - ✓ follow up at orthopedic clinic
- **documentation**

# IV cannula

- Wash your hand
- Greet the examiner
- Introduce your self
- Confirm identity of patient
- Nice to meet you ……
- Ask about comfortability
- Today I need to perform cannulation, which involves inserting a small plastic tube into your vein using a needle. This will allow us to administer fluids and medications via the cannula. You may briefly experience a sharp scratch as the needle is inserted."
- Is it ok with you?
- There is some **complication** may happened like failure of procedure or introducing infection or arterial puncture but we are trained well to deal with this complication if happened and we can avoid it by proper choose the vein and do the procedure under aseptic condition
- **Preparation:**
  - ✓ Clean procedure tray
  - ✓ Non-sterile gloves
  - ✓ Disposable apron (optional)
  - ✓ Tourniquet
  - ✓ Cannula (size appropriate to the indication for cannulation)
  - ✓ Sterile dressing pack (to provide a sterile field)
  - ✓ Cannula dressing
  - ✓ Gauze swabs
  - ✓ Normal saline 0.9% (10 ml)
  - ✓ Syringe (10ml)
  - ✓ Alcohol swab (2% chlorhexidine gluconate in 70% isopropyl)
  - ✓ Sharps container
- **Procedure:**

- Wash your hands again
- wear non-sterile gloves.
- Re-apply the tourniquet if removed previously.

- Remove the cannula sheath.
- Prepare the cannula:
    - Open the cannula wings if present.
    - Slightly withdraw and replace the needle (this will allow it to glide easier during cannulation).
    - Unscrew the cap at the back of the cannula and place upright in the tray (if the cannula is ported).

Anchor the vein with your non-dominant hand from below by gently pulling on the skin distal to the insertion site.

- Warn the patient that they will experience a sharp scratch.
- Insert the cannula directly above the vein, through the skin at an angle of 10-30º with the bevel facing upwards.
- Observe for a flashback of blood into the cannula chamber, which confirms that the needle has punctured the vein.
- Lower the cannula and then advance the needle a further 2mm after flashback is observed to ensure it's within the vein's lumen.
- Partially withdraw the introducer needle, ensuring the needle end is within the plastic tubing of the cannula (you should observe blood entering the plastic tubing of the cannula as you do this).
- Carefully advance the cannula into the vein as you simultaneously withdraw the introducer needle until the cannula is fully inserted and the needle is almost removed.
- Release the tourniquet.
- Place some sterile gauze directly underneath the cannula hub.
- Apply pressure to the proximal vein close to the tip of the cannula to reduce bleeding.
- 16. Gently pull the introducer needle backwards whilst holding the cannula in position until it is completely removed.
- Dispose of the introducer needle immediately into a sharps container.
- inject the normal saline into the cannula using the flush you prepared earlier

- Apply adhesive strips to secure the cannula wings to the skin. Do not obscure the insertion site with the strips, as these needs to remain visible to allow early identification of phlebitis.

- **Documentation** (site,size,date ,indication of cannulation)
- **Thank** the patient for their time.
- Dispose of PPE appropriately
- **wash** your hands.

## Venipuncture

- Wash your hand
- Greet the examiner
- Introduce your self
- Confirm identity of patient
- Nice to meet you ……
- Ask about comfortability
- Today I need to take a blood sample, which involves inserting a small needle into your vein. You may briefly experience a sharp scratch as the needle is inserted

There is Containdication  for this procedure is you have AV fistula at the arm

There is some complication may happened like failure of precedure or introducing infection or arterial puncture  but we are trained to deal with this complication if happened and we can avoid it by proper choose the vein and do the procedure unser aseptic condition

- Preparation
  - ✓ Take verbal consent from the patient after full explanation
  - ✓ Choose the arm for venipuncture  then apply tournique and choose proper vein or ask the patient about his preference vein thrn remove the tournique
  - ✓ Prepare equioment like butter fly needle,alcohol swab,blood tubes,plastic bag,dressing
  - ✓ Wear apron and gloves
  - ✓ Apply alcohol swab at site of vein ,apply tournique again You should start cleaning from the centre of the venepuncture site and work outwards to cover an area of 5cm or more.
  - ✓ DO NOT touch the cleaned site afterwards at any point,
  - ✓ Till the patient that you will brick his skin  ow and he will feel scrach feeling
  - ✓ Intoduce the needle at 30 degree with the bevel upward for 12-2 mm inside the vein

- ✓ Extract blood in blood tubes
- ✓ Release the tourniquet.
- ✓ Withdraw the needle and then apply gentle pressure to the site with some gauze or cotton wool.
- ✓ Ask the patient to hold the gauze or cotton wool in place whilst you dispose of the needle into a sharps container.
- ✓ Apply a dressing to the patient's arm
- ✓ Invert each of the blood bottles the suggested number of times based on its colour.
- ✓ Discard the used equipment into the appropriate clinical waste bin.

- ❖ **Documentation**
- ❖ **Thank** the patient for their time.
- ❖ **Dispose** of PPE appropriately
- ❖ **wash your hands**.
- ❖ **Send the blood samples to the lab**

**With my best wishes,**

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اللهم اجعل هذا العمل خالصا
لوجهك الكريم وانفع به وبنا

**PLEASE PRAY FOR ME AND MY FATHER**